NEW YORK GATEWAY
CONNECTIONS IMPROVEMENT PROJECT
TO THE US PEACE BRIDGE PLAZA

Final Design Report/Environmental Impact Statement

Final Section 4(f) Evaluation (49 USC 303)

APPENDIX G – MISC PAPERS

G-1 – Project Planning & Development – U.S. Plaza of the Peace Bridge
G-2 – Assessment of Diverting Trucks off the Peace Bridge
G-3 – Assessment of Ingress and Egress of Oversize Trucks at the Peace Bridge

PIN 5760.80
City of Buffalo
Erie County, New York

April 4, 2014

U.S. Department of Transportation
Federal Highway Administration

New York State
Department of Transportation

ATTACHMENT G-1

Project Planning & Development – U.S. Plaza of the Peace Bridge

TABLE OF CONTENTS

This page left intentionally blank.

I. Introduction

The advancement of the NY Gateway Connections Improvement Project (hereafter referred to as the "Gateway Project"), independent of other transportation projects or activities in the area, addresses specific transportation needs associated with this international border crossing with Canada. This paper presents a basis for the following conclusions: 1) the project has independent utility; 2) the project serves a discrete purpose; and 3) the project does not restrict consideration of alternatives for other reasonably foreseeable Plaza improvements.

II. Purpose of the Project

The purpose of the Gateway Project is to reduce the use of the local streets by interstate traffic that accesses the existing U.S. Border Port of Entry/Peace Bridge Plaza (hereafter, "Plaza").
Realization of this project would accomplish the following objectives:

- Provide direct access from the Plaza to northbound I-190
- Redirect through traffic from Front Park
- Remove Baird Drive
- Replace the Porter Avenue Bridge over I-190 and the CSX Railroad

Simply put, the purpose of the Gateway Project is to keep interstate traffic on the interstate system and remove interstate bound cars and trucks from the local streets.

III. Interstate System Access Considerations

According to the U.S. Department of Transportation, in its *Interstate System Access Information Guide*, dated August, 2010, "The Interstate System was established for the movement of both military and civilian equipment, freight, and personnel over long distance between and within States…It is the FHWA's continuing responsibility to protect the structural and operational integrity of the Interstate System."[1] The FHWA guidance discourages partial interchanges, especially in the case of Interstate facility connections, and encourages system linkage and connectivity on National Highway System (NHS) facilities. Both the Peace Bridge and I-190 are on the NHS.

Related to access modification and interchanges the Guide states that:

- "The impact of access changes on the operation of the Interstate System are important; also of equal importance is the impact the changes will have on the system as a whole, the environment, potential economic development, the local street system, and safety both on and off the Interstate System."[2]
    - The Gateway Project provides operational, environmental and economic advantages to the public traveling between the Interstate 190 (I-190) and the US Peace Bridge Plaza. The removal of the signalized intersection at the U.S. plaza will remove some of the driver confusion on the plaza and eliminate the stop and go traffic associated with a signalized intersection.
- "It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21st Century by assuring that it provides the highest level of service in terms of safety and mobility."[3]
    - The Gateway Project improves both the safety and mobility for interstate traffic, as well as local traffic, by providing separation to the extent it is possible.
- "The FHWA's interest is to ensure all new or revised access points: …Support the intended purpose of the Interstate System."[4]
    - The Gateway Project meets the purpose of the interstate system by providing direct access for international and interstate freight as well as passenger traffic.
- "All interchanges need to provide for each of the eight basic movements…, except in the most extreme circumstances. Partial interchanges usually have undesirable operation characteristics."[5]
    - The Gateway Project eliminates the current partial interchange configuration.
- "Issues concerning partial interchanges. When partial interchanges (either system or service interchanges that do not provide for all possible interchanging movements between intersecting routes) are being considered as an alternative for a change in access, it is essential that coordination and development of alternatives begin during the early phases of the planning process. Not providing for all movements violates driver expectation and may lead to "wrong-way" movements on ramps."[6]
    - One of the major issues with the current plaza ingress and egress is driver confusion. The Gateway Project provides for a single point of ingress to the U.S. Plaza and a single point of egress from the U.S. plaza, both on the west side of the plaza, thus meeting driver expectations.
- "Systems Linkage or Connectivity - …The new or revised access should be such that it is compatible with the appropriate hierarchy of movement…and supports the role of the Interstate System as a thoroughfare for high-speed, high-volume, and long-haul travel, and not for local access between adjacent areas."[7]
    - The Gateway Project removes international interstate traffic from local streets.
- "Issues with Partial Interchanges – Drivers have the expectation that when they exit the Interstate, they will be able to enter again, either to continue their journey in the same direction or

make the return trip. Partial system interchanges affect regional travel by forcing drivers who remain on the Interstate System to follow other corridors on their return journey and may take them many miles off course. Partial system interchanges also eliminate the opportunity to use alternate freeway corridors to maintain traffic operations during construction, traffic incidents, special events or emergencies."[8]

- The Gateway Project provides a clearer ingress and egress pattern for both interstate traffic as well as local traffic entering or exiting the Plaza.

IV. Existing Highway Connections with the U.S. Peace Bridge Plaza

U.S. Plaza egress - Traveling from Canada to the United States:

The current system has only southbound I-190 direct interstate connectivity. Northbound I-190 access from the Plaza is via plaza crossing patterns on a small and congested plaza, through a signalized plaza intersection and Front Park. This pattern puts up to 300 vehicles per hour on Baird Drive which disrupts, and creates safety concerns, for the public use of Front Park.

U.S. Plaza ingress - Traveling to Canada from the United States:

The current system has only northbound I-190 direct interstate connectivity. Southbound I-190 access to the Plaza is via plaza crossing patterns, through a signalized plaza intersection and through Front Park. This pattern puts up to 440 vehicles per hour on Baird Drive which disrupts, and creates safety concerns, for the public use of Front Park.

V. Benefits of New Highway Connections with the U.S. Peace Bridge Plaza

The project provides for one point of U.S. Plaza ingress and one point of U.S. Plaza egress, both on the west side of the plaza, thus meeting driver expectations. It provides improved interstate highway connectivity from the U.S. Plaza to the I-190.

By removing interstate traffic from Front Park, 1.8 acres are converted to green space thereby reconnecting the 4.5 acres of parkland between Busti Avenue and Baird Drive with the remaining park to the west. The project also improves park access, provides for a safe area for passive and active recreation, reconnects severed pedestrian and bicycle pathways, moves interstate bound traffic away from the existing neighborhood and provides for an improved view-shed.

Removal of the traffic signal between the U.S. Plaza and Front Park eliminates intersecting traffic patterns, which create safety issues due to driver confusion; reduces opportunities for vehicle conflicts,

which improves overall safety for the traveling public; and minimizes vehicular idling while stopped at the signal.

The Gateway Project provides improvements that are independent and not connected to another action by another group or agency to allow them to be fully implemented and achieve their intended purpose and objectives.

VI. Other Projects Affecting the U.S. Plaza

It is recognized that other studies and projects are planned or are being pursued by different entities at this time to address various other needs.

The following projects are currently funded or about to be funded and are associated with the US Plaza:

1) Bridge widening along the throat area between the US Plaza and the Peace Bridge
2) Renovations of the PBA Customs Warehouse
3) Truck Pre-Inspection Pilot
4) Episcopal Church Home
5) Comprehensive traffic study and plaza operational optimization study on the U.S. Plaza
6) Re-decking of the Existing Peace Bridge

The projects and activities listed above are not connected to, nor are they dependent upon, the Gateway Project. They do not satisfy the purpose and need of the Gateway Project or the realization of its stated objectives. They can proceed prior to, currently or subsequent to the completion of the Gateway Project. These activities do not dictate the design configuration of the Gateway Project, nor do they prescribe the scope or location of the proposed interstate connections. Conversely, the Gateway Project does not influence, restrict or dictate the consideration of any of the above listed initiatives.

In addition, the Peace Bridge Authority previously conducted studies to evaluate operational, functional and security improvements with the goal to reduce congestion and improve overall efficiency and functionality of the existing Plaza. These studies have not resulted in a reasonably foreseeable project or action to modify the Plaza, nor are there any programmed activities to undertake such work. These studies, undertaken by the PBA, have shown that due to the physical constraints presented by the interstate highway to the west, Front Park to the south, and the orientation of the approach highway to the existing Peace Bridge to the north, there are limited reasonable options available to increase the size and / or configuration of the existing Plaza. If changes were to be advanced in the future, the orientation of these changes would most likely occur to the east of the existing plaza. As presented in the Gateway Project's Environmental Impact Statement, providing access improvements to and from the Plaza would occur to the west of the existing Plaza. Therefore, when built, the improvements implemented by the

Gateway Project will not need to be modified, reconfigured, or in any way changed to accommodate an increase in the size and / or configuration of the Plaza. The Gateway Connection project will be designed such that it will function efficiently and will not preclude ongoing or future improvements or expansion of the Plaza and related facilities.

The Gateway Project is not dependent upon the advancement of indefinite proposals or concepts to modify the Plaza that have been discussed or contemplated. The Gateway Project serves the discrete purpose and objectives related to direct access from the Plaza to Interstate 190, the removal of interstate traffic from local streets, and the replacement of the Porter Avenue Bridge over I-190 and CSX Railroad.

VII. Conclusion

The Gateway Project will accomplish the project purpose through access and egress from the plaza and local road improvements. The other projects referred to above, including any future modifications to the Plaza, do not dictate the geometrics and design of the Gateway Project. Should these projects occur after the Gateway project is built they will not require any modifications or changes to this project as built.

1. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 1.1, page 1, Introduction.
2. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 1.2, page 1, Purpose.
3. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 2.2, page 3, FHWA's Interest with Changes in Interstate System Access.
4. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 2.2, page 3, FHWA's Interest with Changes in Interstate System Access.
5. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 2.7, page 8, The Eight Policy Requirements.
6. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 3.3.4, page 18, Alternatives to be Considered.
7. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 3.6.1, page 22, Systems Linkage or Connectivity.
8. U.S. Department of Transportation, Federal Highway Administration, Office of Infrastructure, *Interstate System Access Informational Guide, dated August 2010,* Section 6.2.11, page 43, Issues with Partial Interchanges.

This page left intentionally blank.

ATTACHMENT G-2

Assessment of Diverting Trucks off the Peace Bridge

TABLE OF CONTENTS

This page left intentionally blank.

I. Purpose

The purpose of this white paper is to respond to comments expressed during the public involvement process for the NY Gateway Project in Buffalo, NY concerning the alternative for the removal of commercial truck traffic from the Peace Bridge crossing. In response to these comments, FHWA and NYSDOT undertook a preliminary analysis to examine if removing commercial traffic from the Peace Bridge is feasible and practical. The stated purpose for the NY Gateway Project is to reduce the use of the local streets by interstate traffic (autos and trucks) which accesses the existing US Peace Bridge Plaza (hereafter, Plaza) at its current location. As discussed below, the removal of commercial truck traffic from the Peace Bridge would result in a portion of the truck traffic being removed from the immediate area of the Plaza but would not result in a significant reduction of truck traffic on the local road network. Thus, as detailed further below, this alternative is infeasible and impractical because of its exorbitant and non-financeable cost, its adverse environmental consequences, and its impacts on international relations and border security.

II. Current Conditions

The Western New York/Southern Ontario area currently is served by two crossings (see map in **Attachment A**), which allow both passenger and commercial trucks:

1. The Buffalo and Fort Erie Peace Bridge (Peace Bridge). Owned and operated by the Buffalo and Fort Erie Public Bridge Authority (PBA), an international organization, the Peace Bridge links the Queen Elizabeth Way (QEW) in Fort Erie, Ontario to Interstate 190 in Buffalo, New York.
2. The Lewiston-Queenston Bridge (LQ). Owned and operated by the Niagara Falls Bridge Commission (NFBC), the LQ links the Ontario Provincial Highway 405 (General Brock Parkway) in Queenston, Ontario to Interstate 190 in Lewiston, New York.

Both US facilities are on the National Highway System (NHS). The NHS consists of roadways important to the nation's economy, defense, and mobility. The Peace Bridge is part of the Congressional High Priority Corridor on the NHS and a part of the National Freight network. If all commercial trucks were to be prohibited from crossing the Peace Bridge, most, if not all would cross at the Lewiston-Queenston Bridge.

The Peace Bridge

The Peace Bridge is 3,580 feet long and has three lanes, including a center lane that can be assigned to serve the peak direction of traffic flow. In 2011, 621,202 commercial trucks and 2,384,157 non-commercial trucks (autos) used the Peace Bridge to cross from Canada to the US; and 603,056 trucks and 2,030,216 autos made the crossing from the US to Canada.[1] According to the Public Border Operators Association (PBOA), 1,244,738 commercial trucks crossed the Peace Bridge in 2013. A

summary of all the Ontario Border crossing volumes with Michigan and New York for 2012 and 2013 is included as **Attachment B**. This level of traffic is not expected to decline in the foreseeable future.

Trucks entering into the US at the inspection plaza in Buffalo are inspected and processed by the US Customs and Border Protection (CBP). Facilities on the US plaza used for truck inspections include seven primary commercial inspection lanes and 11 secondary commercial docks/bays. The primary commercial inspection lanes provide the first line of inspection, which includes radiation screening and basic primary processing. If there is insufficient paperwork, or the inspecting officer suspects there is a problem with a truck, its driver, or its cargo, the truck undergoes a secondary inspection at the commercial docks, also called the commercial warehouse.

The existing commercial inspection facilities at the US plaza in Buffalo are not adequate to handle the volume of trucks that currently enter the plaza. Delays for trucks at the plaza average 0-30 minutes but can reach up to three hours during heavy truck flow periods. One of the studies conducted for the previous Peace Bridge Expansion Project, the CBP's Program of Requirements (POR) [6] dated August 10, 2007, identified the need for an additional five primary truck inspection lanes (bringing the total to 12 lanes) to adequately process commercial trucks, based on a review of 2007 traffic patterns. The POR noted that the existing 11 secondary commercial docks/bays would remain the same, indicating that according to CBP, the existing plaza would require only an increase in the number of primary truck lanes. However, the POR also indicated the need for many additional truck and car parking spaces.

Under a pilot primary inspection program, which began on February 24, 2014 and will last from six to 12 months, two pre-inspection booths are in place on the Canadian side of the bridge to process U.S.-bound trucks. The pilot inspection program operates Monday through Thursday, from 8:00 a.m. to 4:00 p.m. About 10 percent of trucks that are pre-inspected in Canada require secondary inspection on the U.S. side of the bridge. The pilot program is intended as a "proof of concept," which would demonstrate the feasibility of conducting all primary inspections of U.S.-bound commercial trucks in Fort Erie. Implementation of this program would allow 90 percent of all truck traffic to pass through the U.S. plaza with minimal delay, instead of stopping there. The program should reduce idling by reducing commercial truck delays and could improve air quality.

Trucks entering into Canada at the plaza in Fort Erie are inspected and processed by the Canadian Border Services Agency (CBSA). Truck inspection facilities at the Fort Erie plaza include five primary commercial inspection lanes and eight secondary commercial docks/bays.

The US Peace Bridge Plaza in Buffalo is surrounded by Front Park to the south, Interstate-190 to the west, and the densely populated West Side residential neighborhood along the east.

The Lewiston-Queenston Bridge

The Lewiston-Queenston Bridge is 1,600 feet long and has five lanes, including a center lane that can be assigned to serve the peak direction of traffic flow. Located 30 miles north of the Peace Bridge, the bridge connects two heritage communities: the Village of Lewiston in the Town of Lewiston, NY, and the Village of Queenston in the Town of Niagara-on-the-Lake, Ontario.

In 2011 approximately 310,972 commercial trucks (trucks) and 1,407,047 non-commercial trucks (autos) crossed the Lewiston-Queenston Bridge from Canada into the US; and 349,487 trucks and 1,618,323 autos made the crossing from the US into Canada.[1]

Commercial truck inspection facilities at the US plaza in Lewiston consist of four primary commercial lanes and four secondary commercial docks/bays. These facilities are not adequate to handle the volume of trucks that currently enter the plaza. Delays for trucks at the Lewiston plaza average 30-90 minutes but can reach up to three hours during heavy truck flow periods.

The NFBC is currently in the planning and design stages for a plaza expansion project titled the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project. As part of this project an Environmental Assessment[7] (EA) has been prepared under the direction of the General Services Administration (GSA). The draft EA was completed in September 2013 and a Public Information Meeting was held on September 18, 2013. A Finding of No Significant Impact (FONSI) is anticipated from the GSA in the spring of 2014.

The improvements included under this project are intended to upgrade and expand the existing outdated and insufficient inspection facilitates in Lewiston to handle the projected growth at this plaza. The studies conducted under this project did not consider an option whereby all trucks would be diverted from the Peace Bridge to the Lewiston-Queenston Bridge. As part of the planning for this expansion project, the CBP developed a Program of Requirements (POR), a study dated May 4, 2012 that identified the need to increase the number of primary truck inspection lanes from four to seven. The POR also documented the need to expand the number of secondary commercial docks/bays from four to nine. Identification of these needs was based on a review of existing and projected traffic patterns by CBP.

The US Plaza is located in a suburban residential area in Lewiston. It is surrounded by Upper Mountain Road to the south, Interstate-190 to the east, and a health care complex consisting of Our Lady of Peace Nursing Facility, which currently has 250 residents; Mount St. Mary's Hospital and Health Center, a 175-bed community hospital serving Lewiston and the surrounding communities; and the Mount St. Mary's Child Care Center, which cares for children six weeks to 12 years old. See **Attachment C**.

The current expansion project for the Lewiston Plaza would take place within the property currently owned by the NFBC and not require acquisition from any adjacent properties.

The Canadian plaza, in Queenston, was reconstructed and expanded in 2011 and currently has five primary commercial truck lanes and five secondary commercial docks/bays. The 2011 planning and expansion of the Canadian Plaza in Queenston did not consider an option whereby all trucks would be diverted from the Peace Bridge to the Lewiston-Queenston Bridge. The area surrounding the plaza includes a reservoir used for a hydroelectric plant and a historic park and monument. See **Attachment C**.

Other Crossings

Two other crossings are located in Western New York: the Rainbow Bridge in Niagara Falls, NY and the Whirlpool Bridge, located just north of the city of Niagara Falls, NY. Both bridges are owned and operated by the Niagara Falls Bridge Commission (NFBC). The Rainbow Bridge is 22 miles north of the Peace Bridge in a high tourist area adjacent to Niagara Falls State Park in the US and to tourist attractions, hotels, retail shops, and other tourism establishments in Canada. The Rainbow Bridge serves auto and pedestrian traffic only. The Whirlpool Bridge, located in a mixed use commercial-residential area two miles north of the Rainbow Bridge, can be crossed only by autos that have a NEXUS membership identification pass. The NEXUS program, a joint venture of the CBSA and CBP, is designed to expedite the border clearance process for low-risk, pre-approved travelers into Canada and the United States.

In addition to the consideration of existing crossings, previous studies have been conducted to investigate the feasibility and practically of a new international border crossing at new locations along the Niagara River between Peace Bridge and Lewiston-Queenston. Those studies were undertaken as part of the environmental process for the previous "Peace Bridge Expansion Project". The findings from the studies were published in the 2007 Draft Environmental Impact Statement[8] (DEIS) and associated project scoping documents. The project scoping that was conducted examined numerous options to redirect traffic to new crossing locations, and the expansion of the existing Peace Bridge crossing.

As a result of extensive analysis and coordination with the community and resource agencies, insurmountable challenges resulted from the engineering complexities required to meet the security and operational requirements imposed on these options. The optional crossings that were developed and evaluated created a multitude of environmental and community impacts, acquisitions of many residential and/or commercial properties in both the US and Canada, and unacceptable social and economic consequences. Resulting project costs for constructing a new international crossing at a new location were estimated to be between $1.0 to $1.5 billion. In comparison, project costs associated with expansion of the existing Peace Bridge facility at its current location to meet the established project objectives were approximately $750 million.

As demonstrated by the rescinded Notice of Intent for the previous Peace Bridge Expansion project, the environmental, social and economic impacts were found to be unacceptable and the project sponsor's ability to secure funding was determined to be not feasible. Therefore, the project was terminated. The conclusions derived from the analysis and investigations conducted for this previous project remain valid

and support the position that the concept to divert truck traffic to a new international crossing between Peace Bridge and Lewiston-Queenston is not a feasible or practical consideration for the NY Gateway Project.

III. Impacts to Infrastructure

If all commercial trucks were diverted away from the Peace Bridge international crossing, the majority, if not all of those commercial trucks would utilize I-190 in the US and the General Brock Parkway (Route 405) and the Queen Elizabeth Way (Route 81) in Canada to cross the international border at Lewiston-Queenston. This border crossing passes through the local villages of Lewiston in the US, and Queenston in Canada.

To divert the approximately 1,244,738 commercial trucks vehicles that currently use the Peace Bridge to the Lewiston-Queenston crossing, major transportation infrastructure would need to be constructed. As shown in **Attachment B**, if all Peace Bridge commercial trucks were diverted to the LQ Bridge, truck volumes on the LQ Bridge, based on 2013 year-end figures, would rise from 680,688 to 1,925,426, nearly tripling the number of trucks currently crossing at Lewiston. This increase in commercial truck traffic would be comparable to the volume of trucks crossing the border over a bridge at two other crossings located in Michigan. Those two crossings include the Ambassador Bridge which carried 2,351,000 trucks in 2013, and the Blue Water Bridge which carried 1,537,000 trucks in 2013. The Ambassador Bridge is a four lane bridge with 14 primary commercial inspection lanes and 14 secondary commercial inspection docks/bays on the plaza in the US.

To accommodate the movement of this large volume of commercial trucks, major upgrades would need to be made to the interstate system between Buffalo and Lewiston. Additional major upgrades also would need to be made to the Canadian highway system connecting Fort Erie and Queenston, as well as from the QEW (Queen Elizabeth Way) to the LQ on Provincial Route 405. The Lewiston-Queenston Bridge and both of its plazas (in the US and Canada) would require improvements to handle the large increase in truck traffic. In addition, the four bridges that carry I-190 over the Niagara River, connecting Grand Island to the mainland, are all over 50 years old and each has a narrow 24-foot-wide section with no shoulders. These 4 bridges are functionally obsolete with two lanes of mixed auto and commercial truck traffic on a narrow 24 foot wide roadway section, are structurally deficient due to their age and level of deterioration, and would therefore need to be replaced with new, wider structures. If replaced with the capacity for the additional commercial trucks discussed above, the 4 bridges would each include three lanes with a total width of 54 feet.

Required improvements to the US Plaza in Lewiston include the addition of seven primary inspection lanes (existing at Buffalo); the addition of five other lanes to accommodate future growth, as noted in the 2007 Peace Bridge POR; and the addition of three lanes as identified in the 2012 Lewiston POR. The total required addition of 15 lanes represents an increase of 375 percent. Other required improvements

include the addition of 11 secondary commercial docks/bays as well as the addition of 5 more, as identified in 2012 Lewiston POR, for a total of 16 commercial docks, representing an increase of 400 percent. To accommodate the increased number of primary inspection lanes and commercial docks, the truck staging and parking area at Lewiston would have to be proportionally enlarged; the constructed expansion would represent an increase of approximately 400 percent in area. These additions would result in a fourfold increase in the size of the current plaza in Lewiston.

The improvements required at the Canadian Plaza in Queenston would include the addition of the five primary inspection lanes currently at the Fort Erie Plaza (an increase of 200 percent). Improvements also would include an additional eight secondary commercial docks/bays currently at the Fort Erie Plaza (an increase of 260 percent). In addition to the number of increased primary inspection lanes and commercial docks, a proportionally larger truck staging and parking area also would have to be constructed at Queenston (an increase of 230 percent in area). These additions would result in a twofold increase in the size of the current plaza in Queenston. These additions would not be possible since it would require the acquisition of property from the adjacent historic national park located northwest of the plaza. See **Attachment C.**

The construction cost of the necessary improvements to reroute commercial trucks to Lewiston is estimated as follows:

1. U.S. Improvements:
    a. Lewiston Plaza - add 15 primary inspection lanes and 16 commercial docks: $580 Million (including ROW and relocations)
    b. Interstate-190 improvements from the Lewiston Plaza to I-290: $800 Million, which includes the widening of 14.5 miles of pavement, from four lanes to six lanes; replacement and widening of all four Grand Island bridges; and the replacement/widening of 14 bridges carrying I-190 over various roads and 8 bridges carrying other roads over the I-190.
2. Canadian improvements:
    a. Queenston Plaza - add five commercial lanes and eight inspection bays: $40 Million
    b. Capacity improvements on Canadian highway infrastructure: $200 Million
3. Bridge improvements: Lewiston-Queenston Bridge - additional lanes or new bridge span: $84 Million

According to planning-level cost estimates, developed by NYSDOT using standard estimating tools, the infrastructure improvements needed for the diversion of commercial trucks from the Peace Bridge to the Lewiston-Queenston crossing would be a minimum of $1.7 Billion (see **Attachment D)**. With the economic constraints of the NY State's budget, as well as no available federal or local funding an alternative that would cost $1.7 Billion would not be financially feasible. By comparison, the NY Gateway Project's current estimated cost of $35.2 Million is fully funded.

Moreover, the hundreds of millions of dollars of investment in the Canadian infrastructure that has already been made along the QEW corridor, as well as at the Peace Bridge Canadian plaza, would be underutilized and potentially wasted.

IV. Economic Importance of the Crossings

The Peace Bridge is an important commercial economic driver for the United States and Canada. According to the "2013 Border Infrastructure Investment Plan – United States – Canada," [1] the 2011 value of imports to the US that were transported via the Peace Bridge was $28.1 Billion; and the value of exports to Canada was $20.8 Billion. Vehicles entering Canada via the Peace Bridge are charged a toll, generating approximately $22.389 Million of toll revenue in 2013. With an average toll per auto of $3.00 (US dollars), the Peace Bridge crossing generated about $6.684 Million from autos. Truck tolls, which range from about $6.00 for a two-axle truck to $53.00 for one with seven axles, produced about $15.529 Million.

V. Impacts to Local and Regional Business and Commerce

Local and regional businesses in the Buffalo and Fort Erie areas would be adversely affected by diversion of commercial trucks from the Peace Bridge. The local Buffalo/Niagara Region accounts for 15 percent of all inbound truck traffic and 16 percent of all outbound truck traffic[2] at the Peace Bridge. That equates to a total of 190,000 truck trips per year. Commercial trucks traveling between Buffalo and Fort Erie would experience a minimum 1.1 hours of delay in commercial deliveries due to the 53 miles of additional travel time to Lewiston and back to Buffalo.[3] The average annual cost to the economy for 1.1 hours of delay in commercial deliveries is estimated to range between $80 M and $120 M,[3] which would cost affected companies approximately $21 million annually and result in higher prices to local consumers. In addition to the cost of delays noted above, trucks would have to pay additional tolls, averaging $4.25 per truck, when passing the Grand Island Bridge toll barriers.

If all commercial trucks were to be diverted from the Peace Bridge, the PBA would still be required to operate and maintain the bridge and plaza facilities for auto and pedestrian traffic. If the loss of commercial toll revenue at the Peace Bridge, due to the elimination of trucks, were to be replaced by increased tolls from auto traffic, the toll for a car crossing the Peace Bridge would increase from $3.00/car to $11.00/car, an increase of 367 percent. The 367 percent increase in tolls for autos would result in a diversion of autos to other crossings, thereby exacerbating the problem of lost revenue and the effort to sustain existing facilities. The loss of trucks and potential large loss of autos would reduce sales at the US duty-free enterprise ("Duty Free Americas") and thereby reduce the current revenue provided by this enterprise to the PBA.

There are many other hard and soft costs associated with this diversion of commercial truck traffic. For example, the Ford Motor Company at the Buffalo Stamping Plant uses the Peace Bridge to move 16,500

truck loads per year[4] this equates to $33 million in annualized revenue to Ford Motor Company's operations. Using the estimates for the cost of delays and tolls noted above, the diversion of all the trucks currently traveling across the Peace Bridge to the LQ Bridge would Ford to spend $1.9 Million per year in additional transportation costs.

VI. Impacts to Social and Environmental Conditions

The diversion of truck traffic from the Peace Bridge to the LQ Bridge would have undeniable adverse social and environmental impacts, given the large volume of trucks that would need to be diverted and the substantial infrastructure improvements that would be required.

Social Consequences

The available property owned by the NFBC at the Lewiston plaza is insufficient to expand the plaza to accommodate the diversion of trucks from the Peace Bridge. With Upper Mountain Road and existing Overhead Power Transmission lines located along the south side of the property; the existing interchange of I-190 and Upper Mountain Road to the east; and the Niagara River to the west, the expansion would have to occur to the north. See **Attachment C**.

The addition of 15 primary commercial lanes and 16 secondary commercial docks/bays (needed to replace the facilities at the Peace Bridge and to accommodate future growth), along with a proportional increase in truck parking and staging area to the north, would require the acquisition and relocation of the Mount St. Mary's Child Care Center, Our Lady of Peace Nursing Facility, and the Mount St. Mary's Hospital and Health Center.

There is no recognized general public need or accepted rationale which would justify the social impacts to the local neighborhoods by relocating these healthcare facilities.

Environmental Consequences

As noted above, the diversion of trucks to the Lewiston-Queenston crossing would result in a large increase in the total annual number of vehicle miles traveled (VMT) by trucks (1.24 million vehicles x 53 miles = 65.7 million vehicle miles). There also would be a large increase in the annual number of vehicle hours of delay (VHD) of trucks (1.24 million vehicles x 1.1 hours = 1.36 million vehicle hours). These increases in VMT and VHD would result in unacceptable increases in air pollution and noise impacts. It also is likely that many of the trucks from the Buffalo area that currently cross at the Peace Bridge would continue to use I-190 on their way to/from the Lewiston crossing, thereby not appreciably reducing the amount of commercial truck traffic which needs to access I-190 by the use of local streets.

VII. Impacts to International Relations and Border Security

The Canadian and United States governments have a long-standing history of working to improve trade routes between the two countries. President Obama and Prime Minister Harper of Canada agreed to a February 2011 joint declaration and action plan titled Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness, which states their commitment "to work together to develop joint facilities and programs ... to increase efficiency and effectiveness for both security and trade." In addition, a five-year Border Infrastructure Investment Plan (BIIP)[1] is being prepared by a bi-national group consisting of Transport Canada (TC), U.S. Department of Transportation (USDOT), CBSA, and CBP. This action plan states that Canada and the U.S. "commit to make significant investments in physical infrastructure at key crossings to relieve congestion and speed the movement of traffic across the border." The Peace Bridge is specifically mentioned as one of the priority crossings to be improved for commercial processing and was designated as a location to have a pilot program of pre-inspection commercial processing, which, as described earlier, started February 2014. An alternative that involves removal of commercial truck traffic from an international crossing would limit or restrict trade routes between the two countries and would be contrary to the policy noted above, which is to increase efficiency and effectiveness for both security and trade.

Owing to the large investment made by the Canadian government on the QEW and on the Canadian plazas in Fort Erie and Queenston for the benefit of commercial carriers, and owing to the required costs, security impacts, lack of redundancy and social and environmental reasons set out in this white paper, it is reasonable to assume that the Provincial and Federal Government would not support the diversion of truck traffic away from Fort Erie. The local government, the Town of Fort Erie, already has passed a resolution[5] stating its opposition to a shift in commercial trucks. The Mayor has publicly stated that trucking is big business in Fort Erie and a big employer in the Town and that it is inappropriate for the US to even consider such an action without consulting with Canadian partners.

To reduce its vulnerability in a post 9-11 environment, the international trade corridor must maintain operational redundancy, which requires a minimum of two Niagara Frontier crossings capable of major trade routing. Removing the commercial trucks from the Peace Bridge would limit the number of international crossings for commercial trucks to a single crossing. If a single bridge crossing for commercial trucks in the Niagara/Buffalo Region was closed for whatever reason, commercial trucks would be required to detour around either Lake Erie (536 miles/8.5 hours) or Lake Ontario (619 miles/9.6 hours). Such an event likely would have major negative effects on international trade in both Canada and the United States.

It should be noted that changes in the NHS, the Congressional High Priority Corridor on the NHS, and the National Freight network require a federal rule change, as Congress designated the NHS. This is a long and detailed process. Moreover, closure of the Peace Bridge to trucks would require an international agreement; concurrence by local, provincial, and federal agencies in Canada; and a significant

expenditure by Canadian authorities. The NY Gateway Project cannot control those actions, which would take many years and effort to complete, if at all possible.

VIII. Need for Presidential Permit

Because the proposed changes would substantially modify an existing border crossing, a Presidential permit pursuant to Executive Order 11423, August 16, 1968 (33 Fed. Reg. 11741), is needed if the Lewiston-Queenston Bridge were to be modified or expanded, or the construction of a new or additional international bridge was anticipated to handle additional capacity. The executive order states that "the proper conduct of the foreign relations of the United States requires that executive permission be obtained for the construction and maintenance at the borders of the United States of facilities connecting the United States with a foreign country." Such permission is conveyed through a Presidential permit. The Department of State processes permit applications for most facilities at the border, although other agencies permit certain cross-border facilities under separate legal authority, as detailed below. To issue a permit, the Department must find that the border facility would serve the national interest. The Department consults extensively with relevant federal, state, and local agencies, and invites public comment in arriving at this determination. Consultation would be required with relevant federal and state agencies, including, at the federal level, the General Services Administration, the Department of Transportation's Federal Highway Administration, the Department of Homeland Security's Bureau of Customs and Border Protection, the Environmental Protection Agency, the Department of the Interior's Fish and Wildlife Service, the Coast Guard (because the project is an international bridge), as well as the Department of State. At the state level, consultation would be required with appropriate agencies, including those responsible for the environment, parks, wildlife, highways, and historic and cultural preservation.

A similar process is required in Canada. Under the Canadian International Bridges and Tunnels Act, S.C. 2007,c.1, the Minister of Transport Canada accepts applications for the alteration of international bridges and tunnels. For the application to be approved, the Minister also must find that the alteration serves the national interest.

IX. Conclusion

Exploration of this concept reveals that it is not feasible and not practical to divert commercial truck traffic from the Peace Bridge to the Lewiston-Queenston crossing due to the exorbitant cost to construct the extensive corridor and plaza infrastructure improvements that would be required; international opposition; border security and vulnerability concerns associated with a single commercial crossing; negative local, regional, and national economic impacts; negative social impacts including the relocation of a major medical health complex in Lewiston and increases in VHD and VMT for trucks, resulting in increases in air and noise pollution. In addition to these impacts, there is no international, federal, or state agency support for the described diversion of commercial trucks. In addition, the diversion of commercial trucks from the

Peace Bridge to Lewiston-Queenston does not achieve the project purpose of reducing the use of local streets by interstate traffic (autos and trucks) which accesses the existing plaza at its current location due to continued routing of local commercial trucks around the Peace Bridge Plaza to access I-190. For these reasons, an alternative for the removal of commercial truck traffic from the Peace Bridge was determined to be infeasible and impractical, and not carried forward for further analysis.

Footnotes:

1) "BORDER INFRASTRUCTURE INVESTMENT PLAN, CANADA – UNITED STATES," APRIL 2013 http://www.dhs.gov/sites/default/files/publications/border%20infrastructure%20investment%20plan%20-%20final%20.pdf
2) Niagara Frontier Urban Area Freight Transportation Study - Tech_Memo__3_Final_Revised_020509[1].pdf (pp. 82, 83) http://www.gbnrtc.org/planning/freight-planning/
3) Assessing the Value of Delay to Truckers and Carriers, July 2011 (p. 32) http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&cad=rja&ved=0CCgQFjAB&url=http%3A%2F%2Fwww.courier-journal.com%2Farticle%2F2011309120096&ei=Y2MLU4CiKYbqkQf4tYGIDQ&usg=AFQjCNEEoVomqXFgpcKWSslp5VrsJWNHCg&bvm=bv.61725948,d.eW0
4) Testimony at the 12/18/13 NYSDOT Public Hearing by Patrick McCulligan, a materials logistics manager for the Ford Motor Company at the Buffalo Stamping Plant, located at 3663 Lakeshore Boulevard, Buffalo, New York.
5) Fort Erie Resolution dated July 15, 2013
6) Peace Bridge Expansion Project - Preliminary Final Environmental Impact Statement, May 2011, Section III.A. DESIGN CRITERIA
7) Draft Environmental Assessment for the Lewiston-Queenston Bridge – U.S. Plaza Reconstruction Project, September 2013
8) Draft Environmental Impact Statement (DEIS) for the Peace Bridge Expansion Project, September 2007

This page left intentionally blank.

Attachment A

Attachment B

Public Border Operators Association (PBOA)
Ontario Border Crossings with Michigan & New York
UNITED STATES - CANADA
2012 - 2013

December

Traffic Report for the Month Ending:		December 2012	December 2013	Change	Percent	YEAR-TO-DATE 2012	YEAR-TO-DATE 2013	Change	Percent
Ambassador Bridge	Passenger Cars	387,842	389,036	1,194	0.31%	4,800,491	4,895,539	95,048	1.98%
	Trucks	159,565	169,077	9,512	5.96%	2,506,660	2,351,069	(155,591)	-6.21%
	Buses & Misc.	-	-	-	0.00%	3,151	-	(3,151)	-100.00%
	TOTAL	**547,407**	**558,113**	**10,706**	**1.96%**	**7,310,302**	**7,246,608**	**(63,694)**	**-0.87%**
Blue Water Bridge	Passenger Cars	309,653	309,653	0	0.00%	3,774,216	3,774,216	0	0.00%
	Trucks	105,340	105,340	0	0.00%	1,477,021	1,477,021	0	0.00%
	Buses & Misc.	355	355	-	0.00%	7,127	7,127	-	0.00%
	TOTAL	**415,348**	**415,348**	**0**	**0.00%**	**5,258,364**	**5,258,364**	**0**	**0.00%**
Detroit-Windsor Tunnel	Passenger Cars	321,753	324,789	3,036	0.94%	3,890,340	3,906,587	16,247	0.42%
	Trucks	2,188	2,097	(91)	-4.16%	35,821	30,097	(5,724)	-15.98%
	Buses & Misc.	3,674	3,485	(189)	-5.14%	48,678	43,510	(5,168)	-10.62%
	TOTAL	**327,615**	**330,371**	**2,756**	**0.84%**	**3,974,839**	**3,980,194**	**5,355**	**0.13%**
Ogdensburg Bridge	Passenger Cars	59,091	58,757	(334)	-0.57%	713,704	764,391	50,687	7.10%
	Trucks	5,452	5,645	193	3.54%	70,562	72,150	1,588	2.25%
	Buses & Misc.	-	24	24	100.00%	198	692	494	249.49%
	TOTAL	**64,543**	**64,426**	**(117)**	**-0.18%**	**784,464**	**837,233**	**52,769**	**6.73%**
Peace Bridge	Passenger Cars	351,622	334,590	(17,032)	-4.84%	4,747,023	4,653,634	(93,389)	-1.97%
	Trucks	88,627	91,405	2,778	3.13%	1,265,351	1,244,738	(20,613)	-1.63%
	Buses & Misc.	2,454	2,218	(236)	-9.62%	30,244	29,514	(730)	-2.41%
	TOTAL	**442,703**	**428,213**	**(14,490)**	**-3.27%**	**6,042,618**	**5,927,886**	**(114,732)**	**-1.90%**
Sault Ste. Marie Bridge Bridge Authority	Passenger Cars	161,835	160,882	(953)	-0.59%	1,928,702	1,963,716	35,014	1.82%
	Trucks	6,735	6,352	(383)	-5.69%	96,545	95,548	(997)	-1.03%
	Buses & Misc.	972	891	(81)	-8.33%	45,202	45,194	(8)	-0.02%
	TOTAL	**169,542**	**168,125**	**(1,417)**	**-0.84%**	**2,070,449**	**2,104,458**	**34,009**	**1.64%**
Seaway International Bridge	Passenger Cars	164,240	163,907	(333)	-0.20%	2,199,454	2,131,246	(68,208)	-3.10%
	Trucks	4,914	4,824	(90)	-1.83%	79,207	76,357	(2,850)	-3.60%
	Buses & Misc.	-	-	-	0.00%	-	-	-	0.00%
	TOTAL	**169,154**	**168,731**	**(423)**	**-0.25%**	**2,278,661**	**2,207,603**	**(71,058)**	**-3.12%**

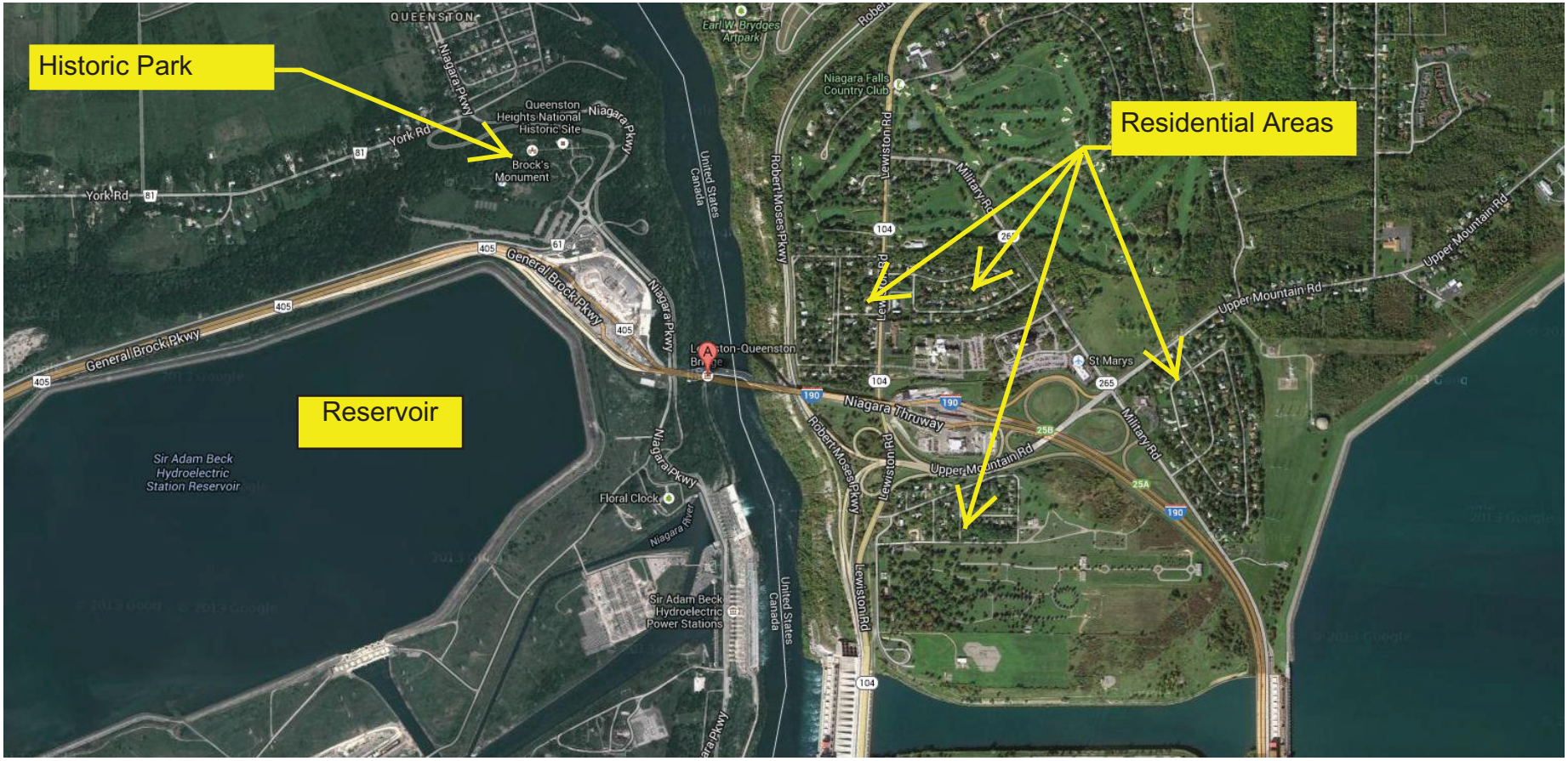
Attachment B

Public Border Operators Association (PBOA)
Ontario Border Crossings with Michigan & New York
UNITED STATES - CANADA
2012 - 2013

December

Traffic Report for the Month Ending:		December 2012	December 2013	Change	Percent	YEAR-TO-DATE 2012	YEAR-TO-DATE 2013	Change	Percent
Thousand Islands Bridge	Passenger Cars	105,952	103,817	(2,135)	-2.02%	1,754,828	1,749,272	(5,556)	-0.32%
	Trucks	24,602	26,157	1,555	6.32%	355,298	369,759	14,461	4.07%
	Buses & Misc.	-	-	-	0.00%	-	-	-	0.00%
	TOTAL	**130,554**	**129,974**	**(580)**	**-0.44%**	**2,110,126**	**2,119,031**	**8,905**	**0.42%**
Lewiston-Queenston Bridge	Passenger Cars	247,512	225,837	(21,675)	-8.76%	3,178,793	2,902,182	(276,611)	-8.70%
	Trucks	48,922	51,932	3,010	6.15%	689,178	680,688	(8,490)	-1.23%
	Buses & Misc.	442	550	108	24.43%	7,926	7,658	(268)	-3.38%
	TOTAL	**296,876**	**278,319**	**(18,557)**	**-6.25%**	**3,875,897**	**3,590,528**	**(285,369)**	**-7.36%**
Rainbow Bridge	Passenger Cars	269,382	238,741	(30,641)	-11.37%	3,634,749	3,394,578	(240,171)	-6.61%
	Trucks	12	4	(8)	-66.67%	133	124	(9)	-6.77%
	Buses & Misc.	1,114	938	(176)	-15.80%	27,892	25,302	(2,590)	-9.29%
	TOTAL	**270,508**	**239,683**	**(30,825)**	**-11.40%**	**3,662,774**	**3,420,004**	**(242,770)**	**-6.63%**
Whirlpool Rapids Bridge	Passenger Cars	52,590	63,794	11,204	21.30%	583,505	750,987	167,482	28.70%
	Trucks	-	-	-	0.00%	-	-	-	0.00%
	Buses & Misc.	-	-	-	0.00%	-	-	-	0.00%
	TOTAL	**52,590**	**63,794**	**11,204**	**21.30%**	**583,505**	**750,987**	**167,482**	**28.70%**
TOTALS	Passenger Cars	2,431,472	2,373,803	(57,669)	-2.37%	31,205,805	30,886,348	(319,457)	-1.02%
	Trucks	446,357	462,833	16,476	3.69%	6,575,776	6,397,551	(178,225)	-2.71%
	Buses & Misc.	9,011	8,461	(550)	-6.10%	170,418	158,997	(11,421)	-6.70%
	GRAND TOTAL	**2,886,840**	**2,845,097**	**(41,743)**	**-1.45%**	**37,951,999**	**37,442,896**	**(509,103)**	**-1.34%**

Attachment C

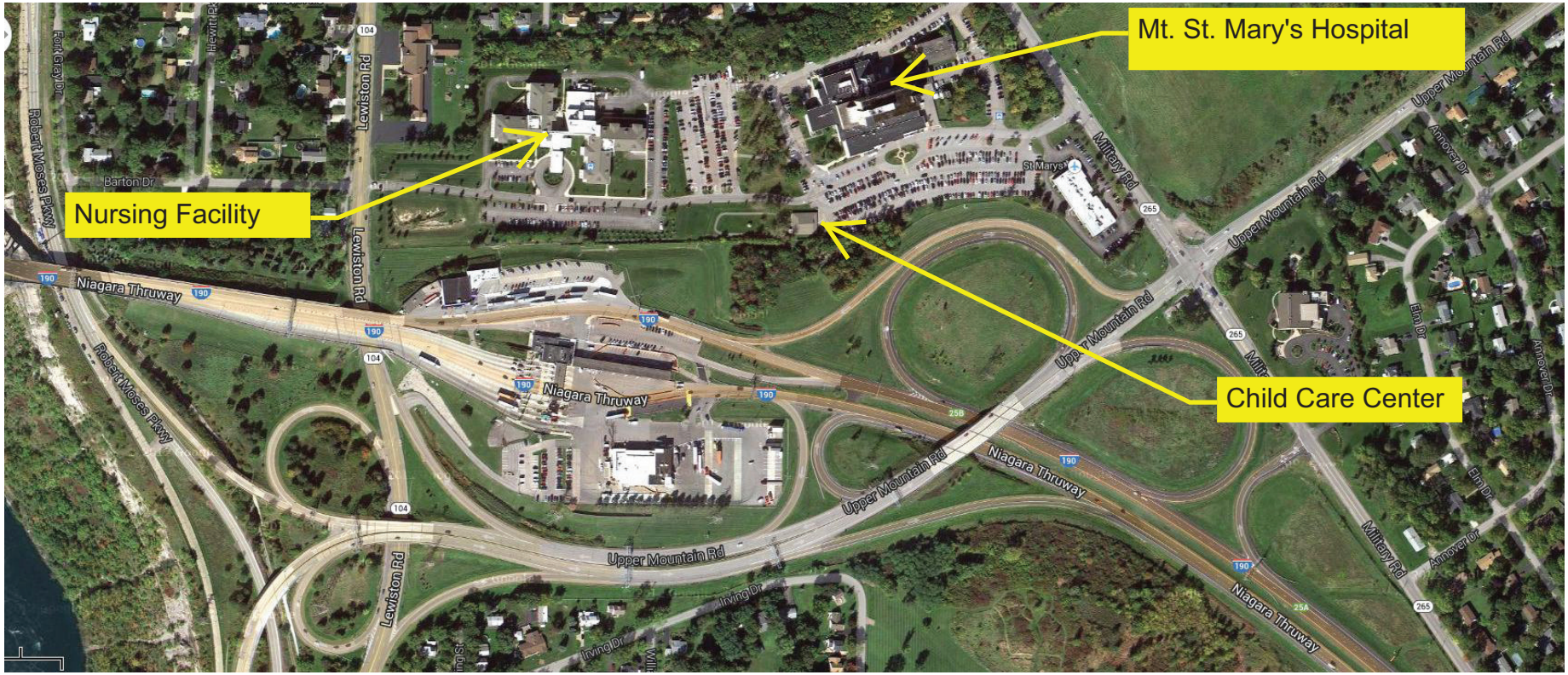


Lewiston -Queenston Bridge

Attachment C

Lewiston -Queenston Plaza

Attachment C



Lewiston -Queenston Plaza

Attachment D

COST ESTIMATES

3/7/2014

COST SUMMARY

1. U.S. Improvements:	$ MILLION
a. Lewiston Plaza - add 15 primary inspection lanes and 16 commercial docks: $580 Million (including ROW and Relocations)	$ 580
b. Interstate-190 improvements from the Lewiston Plaza to I-290: $800 Million, which includes 14.5 miles of pavement widening from a 4-lane to a 6-lane section, replacement and widening of all four Grand Island bridges, and the replacement/widening of 14 bridges carrying I-190 over various roads and 8 bridges carrying other roads over the I-190.	$ 800
2. Canadian improvements:	
a. Queenston Plaza - add 5 commercial lanes and 8 inspection bays: $40 Million	$ 40
b. Capacity improvements on Canadian highway infrastructure: $200 Million	$ 200
3. Bridge improvements: Lewiston-Queenston Bridge - additional lanes or new bridge span: $84 Million	$ 84
Total	**$ 1,704**

See next pages for basis of estimates

	Estimated construction costs at the Lewiston Queenston Plazas and crossing	Quantity	Unit Price (million)	Cost (million)		Say	
1	Lewiston plaza (1) – already planned but not fully funded - includes 7 PILS and 9 Comm docks	1	$ 130.0	$ 130.0			
2	Lewiston plaza (2) - Additional commercial inspection facilities						
	12 PILs	12	$ 1.18	$ 14.2			
	11 Comm Bays	11	$ 2.22	$ 24.4			
	Addditional parking and staging area	4	$ 7.23	$ 28.9	$ 197.5	**$ 200.0**	
3	Property Acquisition/Demolision Costs - Estimated	1	$ 50.0	$ 50.0			
4	Relocation costs (assumes day care, nursing home and hospital are relocated)						
	Child Care Facility	1	$ 10.0	$ 10.0			
	Nursing Home	1	$ 50.0	$ 50.0			
	Hospital (3) - Cost per bed - 175 beds at $1.5 M/each	175	$ 1.50	$ 262.5	$ 372.5	**$ 380.0**	**$ 580.0**
4	Queenston Plaza - additional commercial inspection facilities						
	5 PILs	5	$ 1.18	$ 5.9			
	8 Comm Bays	8	$ 2.22	$ 17.8			
	Addditional parking and staging area (estimated)	1	$ 8.00	$ 8.0	$ 31.7	**$ 40.0**	
5	Additional crossing (widening or new bridge) - 168,000 sf of deck @ $500/sf	168,000	$ 500.00	$ 84.0	$ 84.0	**$ 84.0**	
	Total costs -			**$ 685.6**	**$ 685.6**	**$ 704.0**	

Notes

Draft Environmental Assessment for the Lewiston-Queenston Bridge U.S. Plaza Reconstruction

1 Project Dated September 2013 - includes reconstruction of existing facilities and added capacity for future growth at LQ Plaza.

2 Prices from LQ Schematic Design - Cost Estimates Dated Oct 2012 - Prepared by Turner Construction - see last 3 pages

3 Reference the following links for hospital costs per bed

http://www.maps-jo.com/www.maps-jo.com/Calculate_Gross_Hospital_Area_Construction_Cost.php

http://aharesourcecenter.wordpress.com/tag/hospital-construction-cost-per-bed/

http://www.architectmagazine.com/projects/view/mercy-medical-center-merced-replacement-hospital/213/

Lewiston Plaza
PILS - Commercial Bays and Staging/Parking Area

	LQ		From Buffalo								
	Existing	Future growth	Existing	Future growth	Total	New	Total included in NFBC Plan (3)	Additional needed	Unit cost (M) [1]	Cost	
PILs	4	3	7	5	19	15	7	12	$ 1.18	$ 13.18	
Comm Bays	4	5	11	0	20	16	9	11	$ 2.22	$ 13.22	
Cost (M)											$ 26.40
Parking/Staging [2]											$ 28.90
Total											$ 55.30

(1) Unit prices from taken from the Cost Estimates for the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project.
Estimates prepared by Turner Construction. See last 3 pages

(2) Cost Estimates from the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project. - Phase 9 - See last 3 pages

(3) Niagara Falls Bridge Commission's - Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project.

Queenton Plaza
PILS - Commercial Bays and Staging/Parking Area

	Queenston		From Fort Erie								
	Existing	Future growth	Existing	Future growth	Total	New	Total included in NFBC Plan (3)	Additional needed	Unit cost (M) [1]	Cost	
PILs	5	-	5	-	10	5	-	5	$ 1.18	$ 6.18	
Comm Bays	5	-	8	-	13	8	-	8	$ 2.22	$ 10.22	
Cost (M)											$ 16.40
Parking/Staging [2]											$ 23.50
Total											$ 39.90

(1) Unit prices from taken from the Cost Estimates for the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project.
Estimates prepared by Turner Construction. See last 3 pages

(2) Cost Estimates from the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project. - Phase 9 - See last 3 pages
Assumes 80% increase as compared to the Lewiston Plaza

(3) No additional improvements are planned in Queenston by the Niagara Falls Bridge Commission

LQ Bridge - Capacity Improvements [(1)]

Length (1600 main span + 800 appr)	2400	ft
Width (4 lanes + sidewalk)	70	ft
Area	168,000	sf
Est Unit cost per sf of deck	$ 500	
Cost (168,000 sf @ $500/sf)	**$ 84,000,000**	

(1) Assumes 4 additional lanes would be required at the crossing between Lewiston and Queenston

Item	US Highway Facility	Cost ($M)
1	Cost to reconstruct and widen the pavement from 4 lanes (2NB,2SB) to 6 lanes (3NB,3SB) on the 14.5 mile section of I-190 from the Lewiston-Queenstown bridge to I-290 in Tonawanda:	$ 82.00
2	Cost to modify 8 bridges over widened section of I-190:	$ 32.00
3	Cost to widen 14 bridges carrying I-190 over various roads:	$ 50.00
4	Cost to replace the 2 South Grand Island and 2 North Grand Island bridges carrying I-190 over the Niagara River:	$ 576.00
	Total Construction Cost:	$ 740.00
	Engineering at 8%:	$ 60.00
	Total Estimated I-190 Lewiston-Queenstown bridge to I-290 improvement cost	**$ 800.00**

Item	Canadian Highway Facility	Cost ($M)
1	Cost to reconstruct and widen the pavement from 4 lanes to 6 lanes on the 26 mile section of Garrison Road, QEW and Route 405.	$ 147.00
2	Cost to modify approx 6 bridges over crossing roadways	$ 21.00
	Total Construction Cost:	$ 168.00
	Engineering at 8%:	$ 13.00
	Total Estimated Canadian Highway improvement cost	**$ 202.00**

Turner Construction Company

Niagara Falls Bridge Commission — **SCHEMATIC ESTIMATE 95% DWGS** — **10/18/2012** — *A/Efee %* *0.00%*

BUILDING SYSTEM	SITEWORK Phase 1-NFBC Division Totals	SITEWORK Phase 1/2b- Duty Free Division Totals	Duty Free Building Phase 1 Division Totals	Cost/SF	SITEWORK Phase 2 Division Totals	Export Office Phase 2 Division Totals	Cost/SF	SITEWORK Phase 2B Division Totals	SITEWORK Phase 3 Division Totals	Main Building Phase 3 Division Totals	Cost/SF	Secondary Inspection Phase 3 Division Totals	Cost/SF	Secondary Inspection Canopy Phase 3 Division Totals	Cost/SF
Division 1 General Requirements	$ 164,176	$ 35,617	$ 84,346	**$5.77**	$ 149,681	$ 6,191	$11.68	$32,774	$69,993	$336,430	$7.48	$56,617	**$6.23**	$40,428	**$3.71**
Division 2 Existing Conditions			$ -	**$0.00**	$ 369,472	$ -	$0.00			$0	$0.00	$0	**$0.00**	$0	**$0.00**
Division 3 Concrete			$ 313,598	**$21.45**		$ 27,403	$51.70			$756,419	$16.81	$259,324	**$28.52**	$50,000	**$4.59**
Division 4 Masonry			$ 788,511	**$53.93**		$ 55,616	$104.94			$1,627,739	$36.18	$515,499	**$56.70**	$0	**$0.00**
Division 5 Structural & Misc. Metals			$ 375,139	**$25.66**		$ 15,787	$29.79			$1,211,386	$26.93	$216,246	**$23.78**	$655,738	**$60.24**
Division 6 Wood and Plastics			$ 9,250	**$0.63**		$ 2,120	$4.00			$802,190	$17.83	$40,900	**$4.50**	$0	**$0.00**
Division 7 Thermal Moisture Protection (Roof)			$ 240,935	**$16.48**		$ 9,540	$18.00			$603,047	$13.41	$141,323	**$15.54**	$274,006	**$25.17**
Division 8 Exterior Wall-Doors/Windows			$ 316,570	**$21.65**		$ 74,075	$139.76			$2,366,885	$52.61	$202,105	**$22.23**	$521,648	**$47.92**
Division 9 Finishes			$ 439,291	**$30.04**		$ 16,717	$31.54			$2,109,384	$46.89	$126,899	**$13.96**	$57,720	**$5.30**
Division 10 Specialties- Signage & Specialties			$ 42,925	**$2.94**		$ 10,065	$18.99			$364,936	$8.11	$207,500	**$22.82**	**$0**	**$0.00**
Division 11 Equipment			$ -	**$0.00**		$ -	$0.00			$51,448	$1.14	$0	**$0.00**	$0	**$0.00**
Division 12 Furnishings			$ -	**$0.00**		$ 2,900	$5.47			$101,700	$2.26	$9,200	**$1.01**	$0	**$0.00**
Division 13 Special Construction			$ -	**$0.00**		$ -	$0.00			$0	$0.00	$0	**$0.00**	$0	**$0.00**
Division 14 Conveying Systems			$ 50,000	**$3.42**		$ -	$0.00			$65,000	$1.44	$0	**$0.00**	$0	**$0.00**
Division 21 Fire Suppression Systems			$ 80,970	**$5.54**		$ 7,727	$14.58			$205,614	$4.57	$48,681	**$5.35**	$75,436	**$6.93**
Division 22 Plumbing			$ 155,031	**$10.60**		$ 16,773	$31.65			$371,763	$8.26	$98,410	**$10.82**	$ 35,750	**$3.28**
Division 23 Mechanical			$ 658,758	**$45.05**		$ 28,719	$54.19			$3,215,727	$71.48	$542,084	**$59.62**	$5,139	**$0.47**
Division 26-28 Electrical			$ 746,336	**$51.04**		$ 42,089	$79.41			$2,968,264	$65.98	$422,701	**$46.49**	$345,956	**$31.78**
Division 31-34 Site Development	$ 4,472,528	$ 1,187,244	$0	**$0.00**	$ 4,519,880	$ -	$0.00	$1,092,462	$2,333,085	$0	$0.00	$0	**$0.00**	$0	**$0.00**
UTILITY COMPANY ALLOWANCE	$ 1,000,000				$ 100,000										
Day Care Rework Allowance	$ 1,000,000														
SUBTOTAL	**$6,636,703**	**$1,222,862**	**$4,301,661**	**$294.19**	**$ 5,139,032**	**$315,721**	**$596**	**$1,125,236**	**$2,403,078**	**$17,157,929**	**$381**	**$2,887,488**	**$64.19**	**$2,061,820**	**$227**
LEED SILVER PREMIUM 1.50%						$ 4,736				$ 257,369		$ 43,312		$ 30,927	
INSURANCE REDUCTION DUE TO CCIP BELOW -3.05%	$ (202,419)	$ (37,297)	$ (131,201)		$ (156,740)	$ (9,629)		$ (34,320)	$ (73,294)	$ (523,317)		$ (88,068)		$ (62,886)	
REVISED SUBTOTAL	**$6,434,284**	**$1,185,564**	**$4,170,461**	**$285.22**	**$4,982,292**	**$310,827**	**$586**	**$1,090,917**	**$2,329,784**	**$16,891,981**	**$376**	**$2,842,731**	**$312.66**	**$2,029,862**	**$186**
TOTAL: ESTIMATED DIRECT CONSTRUCTION COST	**$6,434,284**	**$1,185,564**	**$4,170,461**		**$4,982,292**	**$310,827**		**$1,090,917**	**$2,329,784**	**$16,891,981**		**$2,842,731**		**$2,029,862**	
1.1 DESIGN CONTINGENCY 10.00%	**$643,428**	**$118,556**	**$417,046**		**$498,229**	**$31,083**		**$109,092**	**$232,978**	**$1,689,198**		**$284,273**		**$202,986**	
1.1 CONSTRUCTION CONTINGENCY 3.00%	**$193,029**	**$35,567**	**$125,114**		**$149,469**	**$9,325**		**$32,727**	**$69,894**	**$506,759**		**$85,282**		**$60,896**	
1.2 SUBGUARD 1.15%	**$73,994**	**$13,634**	**$47,960**		**$57,296**	**$3,575**		**$12,546**	**$26,793**	**$194,258**		**$32,691**		**$23,343**	
1.3 ESCALATION FACTOR 1.00%	**$ 64,343**	**$ 11,856**	**$ 41,705**		**$ 49,823**	**$ 3,108**		**$ 10,909**	**$ 23,298**	**$ 168,920**		**$ 28,427**		**$ 20,299**	
DIRECT WORK SUBTOTAL	**$7,409,078**	**$1,365,177**	**$4,802,286**		**$5,737,109**	**$357,917**		**$1,256,190**	**$2,682,746**	**$19,451,116**		**$3,273,405**		**$2,337,386**	
Note: Soft Costs (i.e. CM Gen Cond, Insurance, & Fee + Consulting Fees) are not included above															
1.4 BUILDER'S RISK INSURANCE (TCCo/Owner) 0.17%	**$12,595**	**$2,321**	**$8,164**		**$9,753**	**$608**		**$2,136**	**$4,561**	**$33,067**		**$5,565**		**$3,974**	
1.5 ARCHITECTURAL/ENGINEERING/CONSULTANT FEES	**$0**	**$0**	**$0**		**$0**	**$0**		**$0**	**$0**	**$0**		**$0**		**$0**	
1.6 FFE and SPECIAL EQUIPMENT FEES	**By Owner**	**By Owner**	**By Owner**		**By Owner**	**By Owner**		**By Owner**	**By Owner**	**By Owner**		**By Owner**		**By Owner**	
1.7 ELECTRONIC TOLL BOOTH SIGNS	**By Owner**	**By Owner**	**By Owner**		**By Owner**	**By Owner**		**By Owner**	**By Owner**	**By Owner**		**By Owner**		**By Owner**	
1.8 INSPECTIONS/TESTING/SURVEYING INC SWPPP	**By Owner**	**By Owner**	**By Owner**		**By Owner**	**By Owner**		**By Owner**	**By Owner**	**By Owner**		**By Owner**		**By Owner**	
1.9 GENERAL CONDITIONS INCL PRECONSTRUCTION (' 6.50%	**$481,590**	**$88,737**	**$312,149**		**$372,912**	**$23,265**		**$81,652**	**$174,379**	**$1,264,323**		**$212,771**		**$151,930**	
2.0 CONSTRUCTION MANAGEMENT FEE (TCCo) 2.50%	**$207,559**	**$38,244**	**$134,532**		**$160,721**	**$10,027**		**$35,191**	**$75,155**	**$544,908**		**$91,702**		**$65,480**	
2.7 PAYMENT and PERFORMANCE BOND (TCCo) 0.80%	**$66,249.20**	**$12,206.91**	**$42,940.24**		**$51,299.08**			**$11,232.38**	**$23,988.11**	**$173,924.60**		**$29,269.56**		**$20,900.03**	
2.7 CONTRACTOR CONTROLLED INSURANCE PROGRA 4.25%	**$351,696**	**$64,803**	**$227,956**		**$272,330**	**$16,852**		**$59,629**	**$127,345**	**$923,310**		**$155,383**		**$110,952**	
3.0 OWNER CONTINGENCY/HAZ MATRLS 3.00%	**$255,863**	**$47,145**	**$165,841**		**$198,124**	**$12,260**		**$43,381**	**$92,645**	**$671,719**		**$113,043**		**$80,719**	
INDIRECT SUBTOTALS:	**$1,375,553**	**$253,456**	**$891,582**		**$1,065,139**	**$63,012**		**$233,222**	**$498,073**	**$3,611,251**		**$607,733**		**$433,954**	
TOTAL CONSTRUCTION COST	**$8,784,631**	**$1,618,633**	**$5,693,867**		**$6,802,248**	**$420,929**		**$1,489,412**	**$3,180,819**	**$23,062,367**		**$3,881,138**		**$2,771,340**	
			Duty Free Only $7,312,501												

ALTERNATE - OUTBOUND BUILDING $ **2,843,023.44**

BUDGET for FUTURE NII BUILDING $ **4,550,883.23**

Direct Construction Cos	$7,590,947	$1,398,688	$4,920,166	$0	$5,877,936	$366,603	$0	$1,287,026	$2,748,599	$19,928,577	$0	$3,353,757	$0	$2,394,761	$0

Construction Cost Estimate for the Lewiston-Queenston Bridge - U.S. Plaza Reconstruction Project.

Prepared by Turner Construction

Turner Construction Company

Niagara Falls Bridge Commission SCHEMATIC ESTIMAT

BUILDING SYSTEM		Exit Control Booth at 2nd Insp Division Totals	Cost/SF	SITEWORK Phase 4 Division Totals	SITEWORK Phase 5/6 Division Totals	POV Phase 4-6 Division Totals	Cost/SF	Exit Control Booth Division Totals	Cost/SF	SITEWORK Phase 7 Division Totals	Maintenance Facility Phase 7 Division Totals	Cost/SF	SITEWORK Phase 8 Division Totals	Commerical Building Phase 8 Division Totals	Cost/SF	SITEWORK Phase 9 Division Totals
Division 1 General Requirements		$2,404	$24.04	$49,218	$129,154	$250,894	$7.72	$2,404	$24.04	$74,542	$113,685	$6.44	$30,573	$265,523	$5.96	$144,545
Division 2 Existing Conditions		$0	$0.00	$209,433	$127,200	$0	$0.00	$0	$0.00		$0	$0.00	$0	$0	$0.00	$506,884
Division 3 Concrete		$7,489	$74.89			$4,142,791	$127.47	$7,489	$74.89		$352,990	$19.98		$927,367	$20.82	
Division 4 Masonry		$0	$0.00			$0	$0.00	$0	$0.00		$1,035,300	$58.61		$1,792,747	$40.25	
Division 5 Structural & Misc. Metals		$5,000	$50.00			$1,463,608	$45.03	$5,000	$50.00		$431,150	$24.41		$1,214,504	$27.27	
Division 6 Wood and Plastics		$0	$0.00			$0	$0.00	$0	$0.00		$45,600	$2.58		$358,327	$8.05	
Division 7 Thermal Moisture Protection (Roof)		$0	$0.00			$466,742	$14.36	$0	$0.00		$252,155	$14.27		$687,297	$15.43	
Division 8 Exterior Wall-Doors/Windows		$0	$0.00			$1,590,660	$48.94	$0	$0.00		$313,305	$17.74		$989,850	$22.23	
Division 9 Finishes		$0	$0.00			$94,136	$2.90	$0	$0.00		$333,075	$18.86		$1,182,117	$26.54	
Division 10 Specialties- Signage & Specialties		$0	$0.00			$0	$0.00	$0	$0.00		$103,655	$5.87		$489,668	$10.99	
Division 11 Equipment		$0	$0.00			$75,000	$2.31	$0	$0.00		$5,000	$0.28		$59,537	$1.34	
Division 12 Furnishings		$0	$0.00			$0	$0.00	$0	$0.00		$7,400	$0.42		$13,800	$0.31	
Division 13 Special Construction		$87,500	$875.00			$2,033,000	$62.55	$87,500	$875.00		$0	$0.00		$0	$0.00	
Division 14 Conveying Systems		$0	$0.00			$560,000	$17.23	$0	$0.00		$60,000	$3.40		$60,000	$1.35	
Division 21 Fire Suppression Systems		$0	$0.00			$162,246	$4.99	$0	$0.00		$90,068	$5.10		$201,032	$4.51	
Division 22 Plumbing		$0	$0.00			$ 107,955	$3.32	$0	$0.00		$164,499	$9.31		$334,752	$7.52	
Division 23 Mechanical		$8,582	$85.82			$731,155	$22.50	$8,582	$85.82		$1,060,425	$60.03		$2,764,537	$62.07	
Division 26-28 Electrical		$11,627	$116.27			$1,117,393	$34.38	$11,627	$116.27		$1,429,608	$80.93		$2,200,595	$49.41	
Division 31-34 Site Development		$0	$0.00	$1,431,181	$4,177,917	$0	$0.00	$0	$0.00	$1,984,726	$0	$0.00	$1,019,101	$0	$0.00	$4,311,269
UTILITY COMPANY ALLOWANCE										$ 500,000						
Day Care Rework Allowance																
	SUBTOTAL	$122,602	$1,226.02	$1,689,832	$4,434,270	$12,795,581	$394	$122,602	$1,226.02	$2,559,268	$5,797,915	$328	$1,049,674	$13,541,651	$304	$4,962,698
LEED SILVER PREMIUM	1.50%	$ 1,839				$ 191,934		$ 1,839						$ 203,125		
INSURANCE REDUCTION DUE TO CCIP BELOW	-3.05%	$ (3,739)		$ (51,540)	$ (135,245)	$ (390,265)		$ (3,739)		$ (78,058)	$ (176,836)		$ (32,015)	$ (413,020)		$ (151,362)
	REVISED SUBTOTAL	$120,702	$1,207.02	$1,638,293	$4,299,025	$12,597,249	$388	$120,702	$1,207.02	$2,481,210	$5,621,078	$318	$1,017,659	$13,331,756	$299	$4,811,335
TOTAL: ESTIMATED DIRECT CONSTRUCTION COST		$120,702		$1,638,293	$4,299,025	$12,597,249		$120,702		$2,481,210	$5,621,078		$1,017,659	$13,331,756		$4,811,335
1.1 DESIGN CONTINGENCY	10.00%	$12,070		$163,829	$429,903	$1,259,725		$12,070		$248,121	$562,108		$101,766	$1,333,176		$481,134
1.1 CONSTRUCTION CONTINGENCY	3.00%	$3,621		$49,149	$128,971	$377,917		$3,621		$74,436	$168,632		$30,530	$399,953		$144,340
1.2 SUBGUARD	1.15%	$1,388		$18,840	$49,439	$144,868		$1,388		$28,534	$64,642		$11,703	$153,315		$55,330
1.3 ESCALATION FACTOR	1.00%	$ 1,207		$ 16,383	$ 42,990	$ 125,972		$ 1,207		$ 24,812	$ 56,211		$ 10,177	$ 133,318		$ 48,113
DIRECT WORK SUBTOTAL		$138,988		$1,886,494	$4,950,327	$14,505,732		$138,988		$2,857,113	$6,472,672		$1,171,834	$15,351,517		$5,540,253
Note: Soft Costs (i.e. CM Gen Cond, Insurance, & Fee + Consulting Fees) are i																
1.4 BUILDER'S RISK INSURANCE (TCCo/Owner)	0.17%	$236		$3,207	$8,416	$24,660		$236		$4,857	$11,004		$1,992	$26,098		$9,418
1.5 ARCHITECTURAL/ENGINEERING/CONSULTANT FEES		$0		$0	$0	$0		$0		$0	$0		$0	$0		$0
1.6 FFE and SPECIAL EQUIPMENT FEES		By Owner		By Owner	By Owner	By Owner		By Owner		By Owner	By Owner		By Owner	By Owner		By Owner
1.7 ELECTRONIC TOLL BOOTH SIGNS		By Owner		By Owner	By Owner	By Owner		By Owner		By Owner	By Owner		By Owner	By Owner		By Owner
1.8 INSPECTIONS/TESTING/SURVEYING INC SWPPP		By Owner		By Owner	By Owner	By Owner		By Owner		By Owner	By Owner		By Owner	By Owner		By Owner
1.9 GENERAL CONDITIONS INCL PRECONSTRUCTION ('	6.50%	$9,034		$122,622	$321,771	$942,873		$9,034		$185,712	$420,724		$76,169	$997,849		$360,116
2.0 CONSTRUCTION MANAGEMENT FEE (TCCo)	2.50%	$3,894		$52,849	$138,680	$406,367		$3,894		$80,040	$181,327		$32,828	$430,061		$155,206
2.7 PAYMENT and PERFORMANCE BOND (TCCo)	0.80%	$1,242.78		$16,868.32	$44,263.98	$127,037		$1,242.78		$25,022	$56,686		$10,263	$134,444		$48,520
2.7 CONTRACTOR CONTROLLED INSURANCE PROGRA	4.25%	$6,598		$89,549	$234,983	$688,447		$6,598		$135,600	$307,195		$55,616	$728,588		$262,942
3.0 OWNER CONTINGENCY/HAZ MATRLS	3.00%	$4,800		$65,148	$170,953	$500,853		$4,800		$98,650	$223,488		$40,461	$530,057		$191,294
INDIRECT SUBTOTALS:		$25,804		$350,242	$919,067	$2,690,236		$25,804		$529,881	$1,200,423		$217,329	$2,847,096		$1,027,496
TOTAL CONSTRUCTION COST		$164,793		$2,236,736	$5,869,394	$17,195,969		$164,793		$3,386,994	$7,673,095		$1,389,163	$18,198,612		$6,567,749
							Cum Ph1-6 excl Duty Fr	$76,024,570		Cum Ph1-7 excl Duty Free	$87,084,659					

ALTERNATE - OUTBOUND BUILDING	$	2,843,023.44
BUDGET for FUTURE NII BUILDING	$	4,550,883.23

Direct Construction Cos	$142,400	$0	$1,932,801	$5,071,842	$14,861,718	$0	$142,400	$0	$2,927,230	$6,631,518	$0	$1,200,592	$15,728,258	$0	$5,676,216

PIL Costs	$17,195,969
PILs	16.00
Cost per boo	$1,074,748
Design/CI	$107,475
Total	$1,182,223

Comm Bldg Cost	$18,198,612	Site Work (Phase 9)	$6,567,749
Bays	9.00		
Cost per bay	$2,022,068	400 % increase	$26,270,997
Design/CI	$202,207	Design/CI	$2,627,100
Total	$2,224,275	Total	$28,898,097

Turner Construction Company

Niagara Falls Bridge Commission SCHEMATIC ESTIMAT

BUILDING SYSTEM			Exit Control Booth x 2 at Phase 5/6 Division Totals	Cost/SF	Total
Division 1 General Requirements			$4,808	$24	$ 2,044,000
Division 2 Existing Conditions			$0	$0	$ 1,212,989
Division 3 Concrete			$14,979	$75	$ 6,859,849
Division 4 Masonry			$0	$0	$ 5,815,411
Division 5 Structural & Misc. Metals			$10,000	$50	$ 5,603,557
Division 6 Wood and Plastics			$0	$0	$ 1,258,387
Division 7 Thermal Moisture Protection (Roof)			$0	$0	$ 2,675,045
Division 8 Exterior Wall-Doors/Windows			$0	$0	$ 6,375,098
Division 9 Finishes			$0	$0	$ 4,359,339
Division 10 Specialties- Signage & Specialties			$0	$0	$ 1,218,749
Division 11 Equipment			$0	$0	$ 190,985
Division 12 Furnishings			$0	$0	$ 135,000
Division 13 Special Construction			$175,000	$875	$ 2,383,000
Division 14 Conveying Systems			$0	$0	$ 795,000
Division 21 Fire Suppression Systems			$0	$0	$ 871,773
Division 22 Plumbing			$0	$0	$ 1,284,933
Division 23 Mechanical			$17,164	$86	$ 9,040,871
Division 26-28 Electrical			$23,254	$116	$ 9,319,450
Division 31-34 Site Development			$0	$0	$ 26,529,393
UTILITY COMPANY ALLOWANCE					$ 1,600,000
Day Care Rework Allowance					$ 1,000,000
	SUBTOTAL		$245,205	$2,452.05	$90,572,829
LEED SILVER PREMIUM		1.50%	$ 3,678		$ 738,759
INSURANCE REDUCTION DUE TO CCIP BELOW		-3.05%	$ (7,479)		$ (2,762,471)
	REVISED SUBTOTAL		$241,404	$2,414.04	$88,549,116
	TOTAL: ESTIMATED DIRECT CONSTRUCTION COST		$241,404		$88,549,116
1.1	DESIGN CONTINGENCY	10.00%	$24,140		$8,854,912
1.1	CONSTRUCTION CONTINGENCY	3.00%	$7,242		$2,656,473
1.2	SUBGUARD	1.15%	$2,776		$1,018,315
1.3	ESCALATION FACTOR	1.00%	$ 2,414		$ 885,491
	DIRECT WORK SUBTOTAL		$277,977		$101,964,308
	Note: Soft Costs (i.e. CM Gen Cond, Insurance, & Fee + Consulting Fees) are				
1.4	BUILDER'S RISK INSURANCE (TCCo/Owner)	0.17%	$473		$173,339
1.5	ARCHITECTURAL/ENGINEERING/CONSULTANT FEES		$0		$0
1.6	FFE and SPECIAL EQUIPMENT FEES		By Owner		By Owner
1.7	ELECTRONIC TOLL BOOTH SIGNS		By Owner		By Owner
1.8	INSPECTIONS/TESTING/SURVEYING INC SWPPP		By Owner		By Owner
1.9	GENERAL CONDITIONS INCL PRECONSTRUCTION (	6.50%	$18,068		$6,627,680
2.0	CONSTRUCTION MANAGEMENT FEE (TCCo)	2.50%	$7,787		$2,856,449
2.7	PAYMENT and PERFORMANCE BOND (TCCo)	0.80%	$2,434		$899,974
2.7	CONTRACTOR CONTROLLED INSURANCE PROGRA	4.25%	$13,193		$4,839,560
3.0	OWNER CONTINGENCY/HAZ MATRLS	3.00%	$9,598		$3,520,839
	INDIRECT SUBTOTALS:		$51,554		$18,917,843
	TOTAL CONSTRUCTION COST		$329,531		$120,882,150
			Cum Ph1-9 excl Duty Free		$113,569,650

ALTERNATE - OUTBOUND BUILDING	$	2,843,023.44
BUDGET for FUTURE NII BUILDING	$	4,550,883.23

Direct Construction Cos $284,799 $0 $104,466,832

$98,147,978 w/o DF

Construction	$120,882,150
Design/CI	$12,000,000
Total	$132,882,150

ATTACHMENT G-3

Assessment of Ingress & Egress of Oversize Trucks at the Peace Bridge

TABLE OF CONTENTS

This page left intentionally blank.

I. Objective

The objective of this study was to determine if the oversize trucks that are currently using Baird Drive to access the Peace Bridge (PBA) Plaza will still be able to travel to/from the plaza after the ramp modifications and the proposed removal of Baird Drive are completed as part of the NY Gateway project.

To begin this study is was necessary to determine the dimensions of the oversize trucks that typically travel through the plaza. After confirming the truck dimensions, truck travel paths were simulated using AutoTURN [(1)]. These simulations confirmed which vehicles can negotiate the proposed new and existing ramps to reach Porter Avenue or the I-190. To facilitate this analysis the oversize trucks were divided into groups of similar size vehicles, then a vehicle from each group was selected for use in the analysis. Four routes through the plaza and along the proposed ramps were selected as the standard routes for use in the AutoTURN simulations. The data for the various vehicle sizes and simulation paths is summarized in the tables and figures that follow.

II. Truck Data

Oversized truck data obtained from the PBA was based on a 9 month period from November 2012 thru July 2013. The data received from the PBA included crossing dates, truck widths, lengths, and weights. Additional detailed dimensional information such as axel spacing was available from the permits to correlate the truck dimensions to the various loads transported or the type of truck used. During the study period there were 862 oversize trucks that crossed the bridge (both directions). Although no formal breakdown of the directional split was provided it is being assumed that the number of crossings could be evenly split between Canada Bound and US Bound. The PBA noted that they averaged about 1,200 special loads annually over the past five years. Over the past 5 years (2009 – 2013) the Peace Bridge averaged a total of 1,220,000 trucks annually. This indicates that the number of oversized trucks account for less than one tenth of one percent (0.098%) of the total truck volume crossing the bridge.

Since it was not reasonable to simulate each of the over 800 trucks identified, the trucks were evaluated in groups of similarly sized vehicles as noted above. The oversize truck data was first broken into seven common width ranges identified in **Table 1**.

Table 1: Common Truck Test Truck Widths

	Width Range	% of Total Trucks		Width Range	% of Total Trucks
1	≤ 12’-6”	(48%)	5	16’-6” ≤ Truck Width < 17’-6”	(<1%)
2	12’-6” < Truck Width < 14’-6”	(31%)	6	17’-6” ≤ Truck Width < 19’-0”	(<1%)
3	14’-6” ≤ Truck Width < 15’-6”	(12%)	7	Truck Width ≥ 19’-0”	(<1%)
4	15’-6” ≤ Truck Width < 16’-6”	(7%)			

The widths noted above were matched with the corresponding lengths to develop the seventeen combinations (width and length) selected for use as “typical test trucks” in the simulations. Typical test truck dimensions are shown in **Table 2**.

Table 2: Typical Test Truck Dimensions

	Width x Length		Width x Length		Width x Length		Width x Length
1	12’-6” x 80’-0”	6	14’-0” x 120’-0”	10	16’-0” x 80’-0”	14	17’-0” x 120’-0”
2	12’-6” x 100’-0”	7	15’-0” x 80’-0”	11	16’-0” x 100’-0”	15	18’-0” x 100’-0”
3	12’-6” x 120’-0”	8	15’-0” x 100’-0”	12	16’-0” x 120’-0”	16	19’-0” x 80’-0”
4	14’-0” x 80’-0”	9	15’-0” x 120’-0”	13	17’-0” x 80’-0”	17	20’-0” x 80’-0”
5	14’-0” x 100’-0”						

After determining the typical test vehicle dimensions there were 43 trucks that did not fit within any of typical vehicle categories. **Table 3** illustrates a sample of the typical truck found in this group. Due to the overall large size of these trucks some were modeled as special transport vehicles.

Table 3: Trucks Dimensions Outside Typical Test Vehicle Parameters

Date	Width (ft)	Length (ft)		Date	Width (ft)	Length (ft)
6/21/2013	13'-7	187'-0		2/1/2013	15'-10	126'-0
12/4/2012	13'-3	128'-0		1/24/2013	15'-10	126'-0
11/13/2012	13'-6	128'-0		1/24/2013	15'-10	126'-0
4/10/2013	13'-10	125'-0		12/6/2012	15'-10	124'-0
11/29/2012	13'-4	122'-0		12/18/2012	15'-10	124'-0
12/19/2012	15'-5	179'-0		12/18/2012	15'-10	124'-0
1/9/2013	14'-6	159'-0		12/6/2012	15'-10	123'-0
3/28/2013	14'-9	129'-0		12/18/2012	12'-0	164'-0
12/7/2012	16'-4	142'-0		4/30/2013	12'-6	133'-0
7/5/2013	15'-10	126'-0				

Meetings were held with the New York State Motor Truck Association (NYSMTA) and the Ontario Trucking Association (OTA) to gain a perspective on the issues that trucking companies face during the process of moving large loads across the border. Plans for the Build Alternative were shared with these organizations in order to obtain feedback on how the alternative would affect their operations.

As a result of those meetings and to improve the AutoTURN simulation results several specialized hauling companies were contacted to obtain dimensional and operational data for the specific trucks they used in the area to haul over-size loads. The data provided confirmed that the templates available in AutoTURN were conservative and that using the standard templates would yield good results. Some of the companies noted that many times the most restrictive dimension is its vertical clearance as there is no way to work around this limitation. To work around horizontal clearance restrictions the companies can use features such as custom modified trailers and rear wheel steering.

III. Truck Models Used in the Turning Simulations

A typical WB-67 template was used to develop templates for the larger trucks with the trailer widths and lengths modified accordingly to match the vehicle being simulated (See **Figure 1**). The articulating angle was set to the default of 70 degrees and all axial spacing's were assumed to be consistent with the WB-67 truck. This was considered a conservative approach because the load width was carried the full length of the trailer. In most cases the trailers are less than 12 feet wide with the load overhanging in center of the trailer. The more common oversize trucks were simulated in lengths of 80 ft., 100 ft., and 120 ft. and widths varying between 13 ft. and 20 ft.

To simulate the very long loads (truck length over 130 feet) two Special Transport vehicles were selected from the AutoTURN default vehicle library and used for modeling the trucks outside the typical test vehicle dimensions. See **Figure 2** *Wind Tower Trailer* and **Figure 3** *Wind Blade Trailer below:*

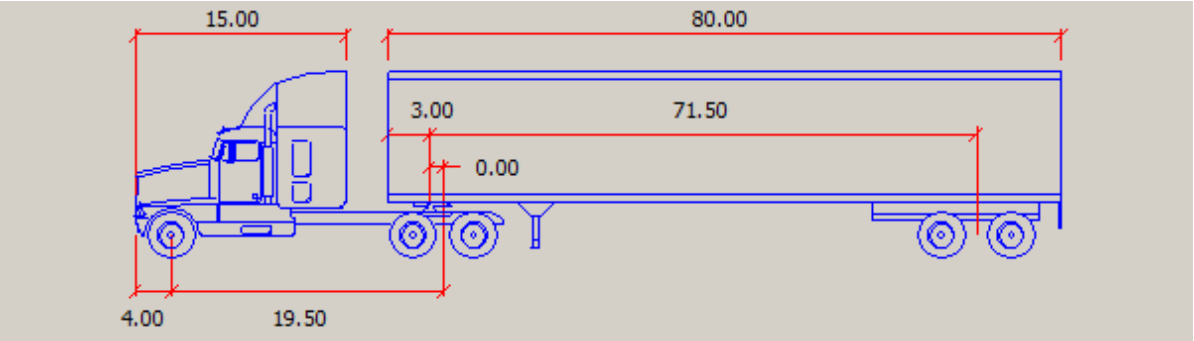


Figure 1 – WB-67 truck with 80'-0" trailer and overall length of ~100'-0". (80' and 120' similar)

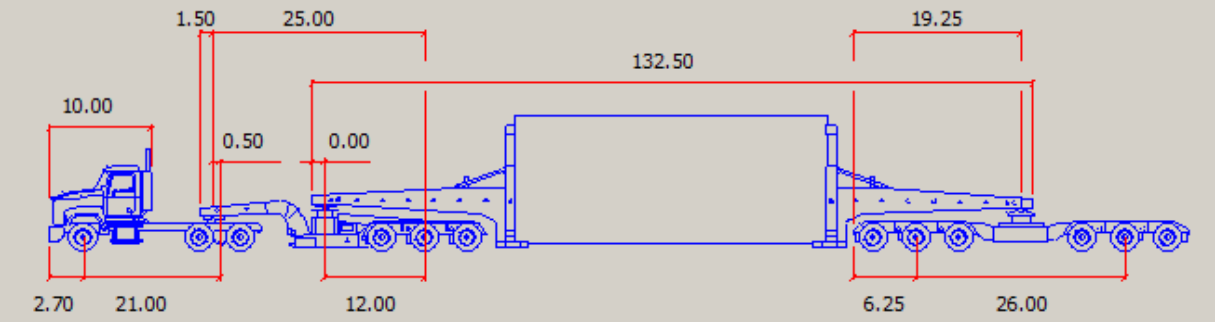


Figure 2 – AutoTURN Special Transport – Wind Tower Trailer. Total Length = 190.95 ft.

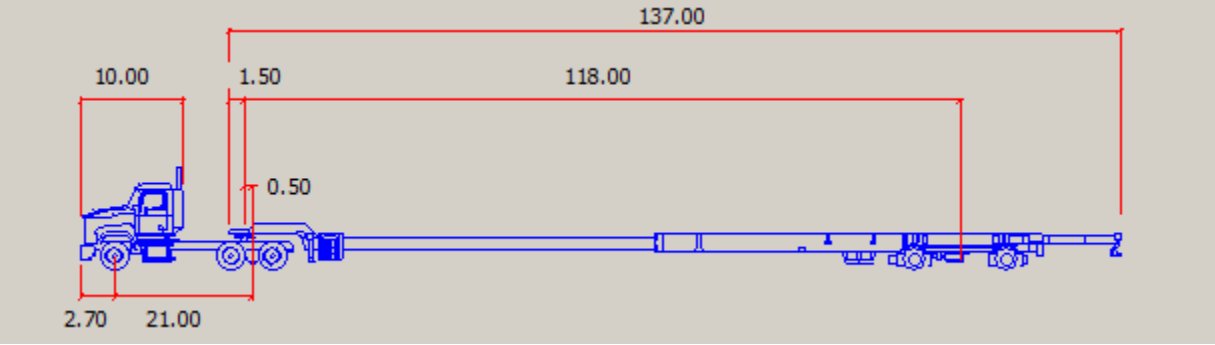


Figure 3 – AutoTURN Special Transport – Wind Blade Trailer. Total Length = 158.70 ft.

IV. Restrictions on Allowable Truck Dimensions

There are four constraints placed on oversized trucks that limit the routes available when entering the US from Canada. The PBA regulates oversized loads crossing the bridge. Secondly, the New York State Thruway Authority (NYSTA) regulates the size of vehicles allowed on the NYS Thruway. The final two constraints are the existing plaza configuration and the proposed geometry of the roadways leading to the plaza.

- The PBA regulates the maximum truck dimensions and weights allowed over the Peace Bridge. The PBA uses a permitting process to document and classify trucks as "oversized" loads. If a truck meets one or any combination of the following it is classified as an oversized load: truck/load width > 12'-0", total truck length > 85'-0", or total weight > 117,000 lbs. Within the given date range, a total of 862 oversized loads were recorded by the PBA. Of these loads the maximum truck/load width was 19'-1" and the maximum total truck length was 187'-0".

- The NYSTA places restrictions on the maximum width and length of trucks that are allowed on the thruway system. These limitations effect the movement of trucks exiting the plaza using the proposed ramp to the I-190 north bound (Ramp D) and the existing ramp to the I-190 south bound (Ramp B). The maximum vehicle width allowed on the NY Thruway I-190 is 12'-6" A permit is required for any vehicle greater than 80,000 lbs in weight, 8'-6" in width, or 65'-0" in length. About half of the oversize trucks in the study were narrow enough to allow permitted travel on the I-190 however; it is not known how many actually used this route.

- Travel through the PBA US plaza is governed by the physical features including inspection booth size, obstacle location, travel way width and staging area location. The maximum truck width that can travel through the commercial primary inspection booth area is 16'-10" but this is also dependent on length. Vehicles that cannot travel through an inspection booth must traverse the plaza in a counter-flow direction traveling in the wrong direction in the Canada bound lanes. This operation is normally accomplished by closing the center lane of the Peace Bridge when a large oversize truck is on the bridge.

- The final constraint is geometric configuration of the roadways allowing access to and from the plaza and to and from the local street network. The width, alignment and intersection configuration of the roadways leading to the plaza restricts the direction and the route oversize trucks must follow to enter or leave the plaza. In addition to the permit to cross the Peace Bridge a permit must also be obtained from the City of Buffalo or Erie County for travel via the local street network. For some of the longest loads it is not possible to follow the roads in the normal travel direction. For these loads trucks must travel in the counter-flow configuration along whatever route is wide enough to allow them to pass.

Other geometric constraints include the intersection configuration at Porter Avenue and Niagara Street and the intersection of Sheridan Terrace and Niagara Street.

As part of the ramp design process the entrance to Ramps C and D was reconfigured several times to find the configuration that can accommodate the greatest number of oversize trucks. The adjusted configuration was also found to help reduce conflicts with existing features in the existing plaza.

V. Truck Turning Path Simulations

After determining the typical dimensions of the oversize trucks, the vehicle travel paths from the plaza onto the I-190 or local road network were "simulated" using AutoTURN. The routes selected for the simulations match the ramp alignments that would be in place after completion of the NY Gateway Project. The Four routes used for the simulations are described below and shown in **Figures 4** and **5**. In addition the turning movements at the Porter Avenue and Niagara Street intersection were simulated for the special transport vehicles. The results of the simulations are presented in Section 6.

Truck Travel Path Descriptions:

1. Ramp B — PBA Plaza to southbound I-190 (existing ramp)
2. Ramp C — PBA Plaza to Sheridan Terrace/Niagara Street (modified existing ramp)
3. Ramp D — PBA Plaza to northbound I-190 (proposed ramp)
4. Counter-flow — PBA Plaza to Porter Ave traveling counter-flow via Ramp A, a portion of Ramp N, & Ramp PN (to Porter Ave.). This movement is made possible by including a concrete median barrier between Ramps N and PN thereby allowing northbound traffic to queue on Ramp N while the truck is traveling counter-flow (southbound) down Ramp PN to Porter.

VI. Results of Truck Turning Path Simulations

Once the proposed ramp configurations were finalized over 20 truck configurations were simulated using AutoTURN. In most cases the simulations were done using successively larger trucks until the simulation failed because the vehicle could not traverse the chosen route. Results of the simulations are described below and summarized in **Table 4**.

Nearly 50 percent of all oversize trucks in this study were equal to or narrower than 12'-6" in width and could travel on the northbound I-190 and southbound I-190 via Ramp D and Ramp B respectively. Trucks wider than 12'-6" were not simulated along Ramps B and D because they are currently not permitted on I-190.

Simulations for movements on Ramp C revealed that 837 oversize trucks (97% of trucks included in the study) could traverse the modified Ramp C configuration to Sheridan Terrace and on to northbound Niagara Street. Most of the 837 trucks could access Ramp C directly from the existing inspection booths. However, a small number (26) of the trucks that could travel down Ramp C could not easily pass through the inspection booths.

For these trucks to reach Ramp C they would need to travel through the commercial inspection area then use a portion of the commercial area parking lot to travel in a larger arc (over steering) to reach Ramp C. A second option for these trucks would be traveling counter-flow in the Canada bound lanes and enter the east side of the commercial inspection area opposite the Duty Free Store. Depending on plaza operation priorities, time of day, day of week, vehicle configuration and current traffic volume on the plaza, the Authority would decide if these vehicles could use an indirect route to Ramp C or might be required to use the Ramp A counter-flow route described below.

A very small number of trucks that could not exit the plaza via Ramps B, C, or D were identified during the simulation process. These trucks were generally very wide, excessively long or both. This group of trucks can only exit the plaza in a counter-flow movement via Ramp A, Ramp N and Ramp PN to Porter Avenue. Trucks in this group also include the Special Transport Vehicles described in Section 3. After completion of the NY Gateway project about 14 trucks or 1.6 percent of the vehicles from the nine month study period would need to exit the plaza using a counter-flow movement.

The results described above are for the specific vehicles that traversed the Peace Bridge during the nine month study period. In any given period the number and size of trucks will vary and the number of trucks that are required to traverse the counter-flow route will be dependent on the truck size and not the number of trucks.

Table 4 Plaza Exit Paths for Oversized Trucks

	Truck Size		Number of Trucks		Route Traveled			
	Width	Length	Count (n)	% of Total	Ramp B	Ramp C (To Niagara)	Ramp D	Must Use Counterflow[1]
Typical Oversized Trucks	12' - 6"	80' - 0"	195	23%	✔	✔	✔	-
	12' - 6"	100' - 0"	119	14%	✔	✔	✔	-
	12' - 6"	120' - 0"	80	9%	✔	✔	✔	-
	14' - 0"	80' - 0"	167	19%	Trucks over 12' - 6" wide not permitted on I-190 by NYSTA	✔	Trucks over 12' - 6" wide not permitted on I-190 by NYSTA	-
	14' - 0"	100' - 0"	74	9%		✔		-
	14' - 0"	120' - 0"	21	2%		✔		-
	15' - 0"	80' - 0"	35	4%		✔		-
	15' - 0"	100' - 0"	53	6%		✔		-
	15' - 0"	120' - 0"	9	1%		✔		-
	16' - 0"	80' - 0"	29	3%		✔		-
	16' - 0"	100' - 0"	15	2%		✔		-
	16' - 0"	120' - 0"	8	1%		✔		-
	17' - 0"	80' - 0"	2	< 1%		✔		-
	17' - 0"	120' - 0"	1	< 1%		✔		-
	18' - 0"	100' - 0"	2	< 1%		✔		-
	19' - 0"	80' - 0"	6	< 1%		X		✔
	20' - 0"	80' - 0"	3	< 1%		X		✔
Atypical Oversized Trucks	12' - 0"	164' - 0"	7	5%	✔	X	X	-
	12' - 6"	133' - 0"	4		✔	X	✔	-
	13' - 3"	128' - 0"	4		Trucks over 12' - 6" wide not permitted on I-190 by NYSTA	✔	Trucks over 12' - 6" wide not permitted on I-190 by NYSTA	-
	13' - 4"	122' - 0"	1			✔		-
	13' - 6"	128' - 0"	6			✔		-
	13' - 7"	187' - 0"	2			X		✔
	13' - 10"	125' - 0"	6			✔		-
	14' - 6"	159' - 0"	1			X		✔
	14' - 9"	129' - 0"	1			✔		-
	15' - 5"	179' - 0"	1			X		✔
	15' - 10"	124' - 0"	5			✔		-
	15' - 10"	126' - 0"	4			✔		-
	16' - 4"	142' - 0"	1			X		✔
Total			862		405	837	398	14
Percent			100.0%		47.0%	97.1%	46.2%	1.6%

Notes: 1 - Trucks that can only exit plaza via counter-flow

Route Descriptions:

Ramp B	Plaza to I-190 SB
Ramp C	Plaza to Sheridan Terrace/Niagara St.
Ramp D	Plaza to I-190 NB
Counter-flow	Plaza to Porter Ave via counter-flow over Ramps A, N, & PN

KEY:

✔	Truck will fit down route
X	Truck will not fit down route
-	Not required to use counterflow

VII. Permits and Staging

Depending on the route, each time an oversize truck crosses the Peace Bridge the company operating the truck must obtain permits from the Peace Bridge Authority, and the agencies that have jurisdiction over the roadways that the truck will traverse after leaving the plaza. The most common agencies issuing permits include the City of Buffalo, Erie County, and the New York State Thruway Authority. With the exception of the Ramp A counter-flow movement implementation of the NY Gateway Project will not significantly change the permitting process or the type of permit required.

For the Ramp A counter-flow movement temporary closures of Ramp A, Ramp N, and Ramp PN will be required. The agencies responsible for this would be the Peace Bridge Authority and the New York State Thruway Authority. The NYSTA Local Division staff has reviewed the plan for the counter-flow movement and agrees that the Authority would assist with the traffic control necessary for counter-flow movement. Application for the counter-flow movement would become part of the NYSTA oversize truck permitting process. Any fees to implement a counter-flow movement would become part of the permitting cost paid by the trucking company.

To better facilitate staging for wide loads two staging areas are proposed. The first would be for US bound (inbound) trucks along the south curb line near the entrance to Ramp D. A second staging area for Canada bound (outbound) trucks would be provided off Ramp A just south of the Duty Free Store. These areas will provide a much needed space for special customs inspections and parking for escort vehicles. See **Figure 4.**

VIII. Summary

Construction of the NY Gateway project is expected to alter the routes oversize trucks can use to enter and leave the PBA Plaza, but it will not reduce the size, type, or number of oversize trucks currently traveling through the plaza or onto the existing surrounding highway network.

Footnotes:

1. AutoTURN is a comprehensive Computer Aided Design program used to conduct vehicle turn and swept path analyses to help evaluate standard design or specialized vehicle maneuvers for all types of roadway, highway, and site design projects. AutoTURN was developed by Transoft Solutions.

This page left intentionally blank.

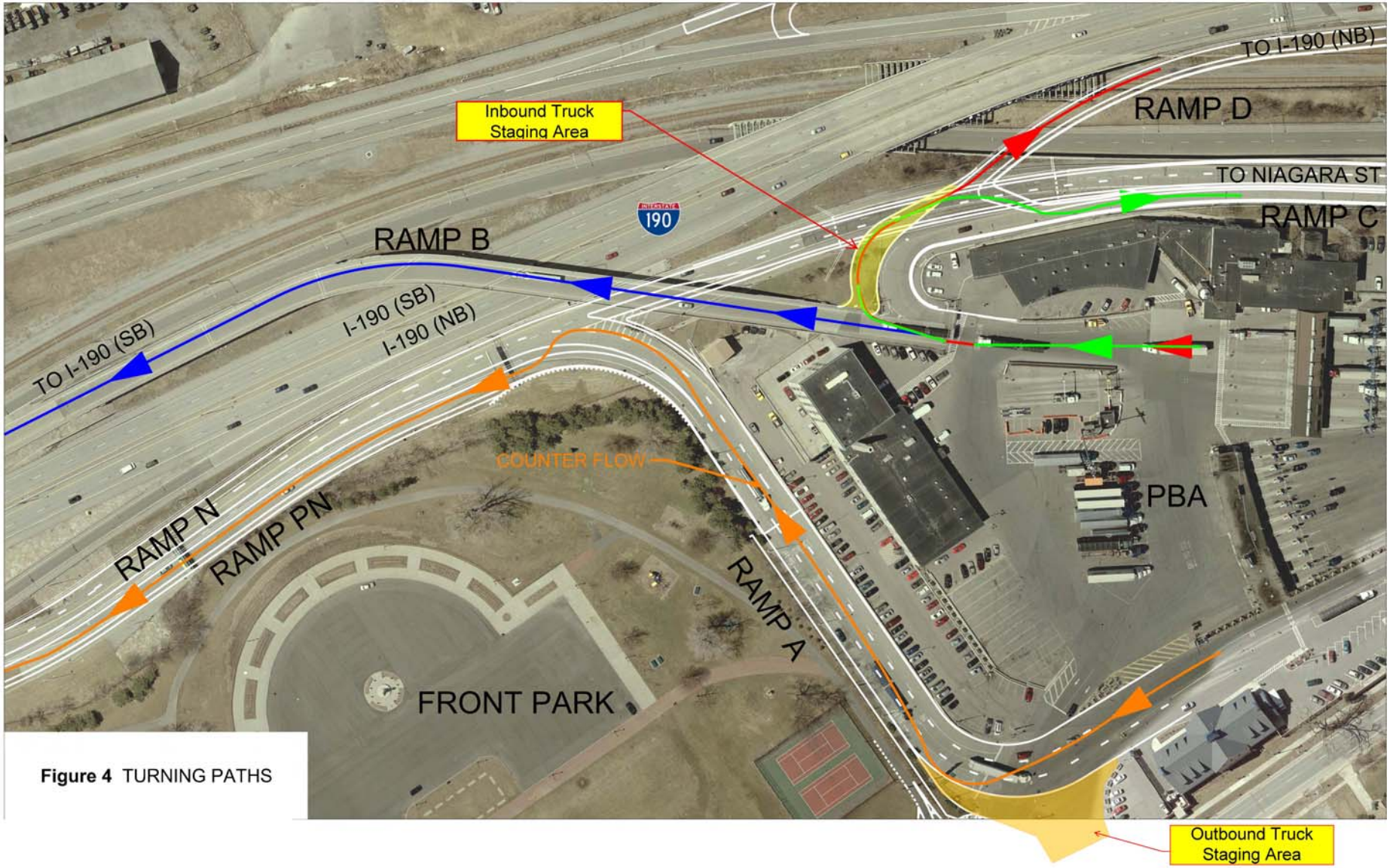


Figure 4 TURNING PATHS

Figure 5 TURNING PATHS